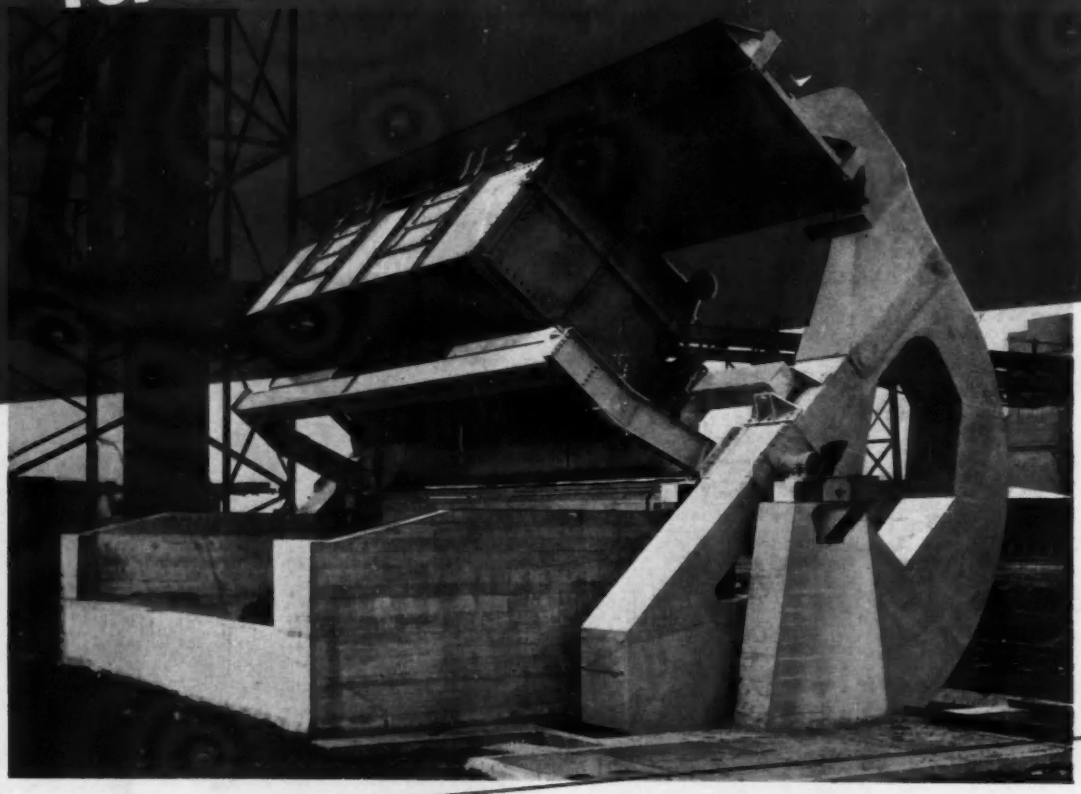
CHNOLOGY DEPT.

Gas Journal

ANNUAL REVIEW NUMBER

VOL. 292. 109th YEAR. LONDON, DECEMBER 25, 1957. No 4928 PRICE 1/6

For Mechanical Handling Plant



Latest design of ROTASIDE TIPPLER for wagons up to 35 tons gross.

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Sturdy construction and clean lines.
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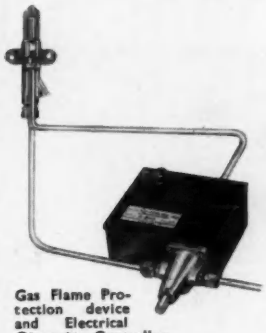

Gas Flame Protection device and Electrical Circuit Controller.
CAT. NO : G.810
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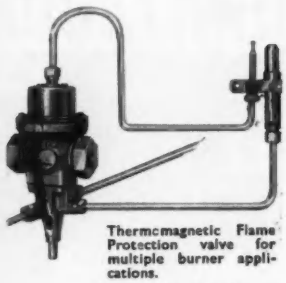

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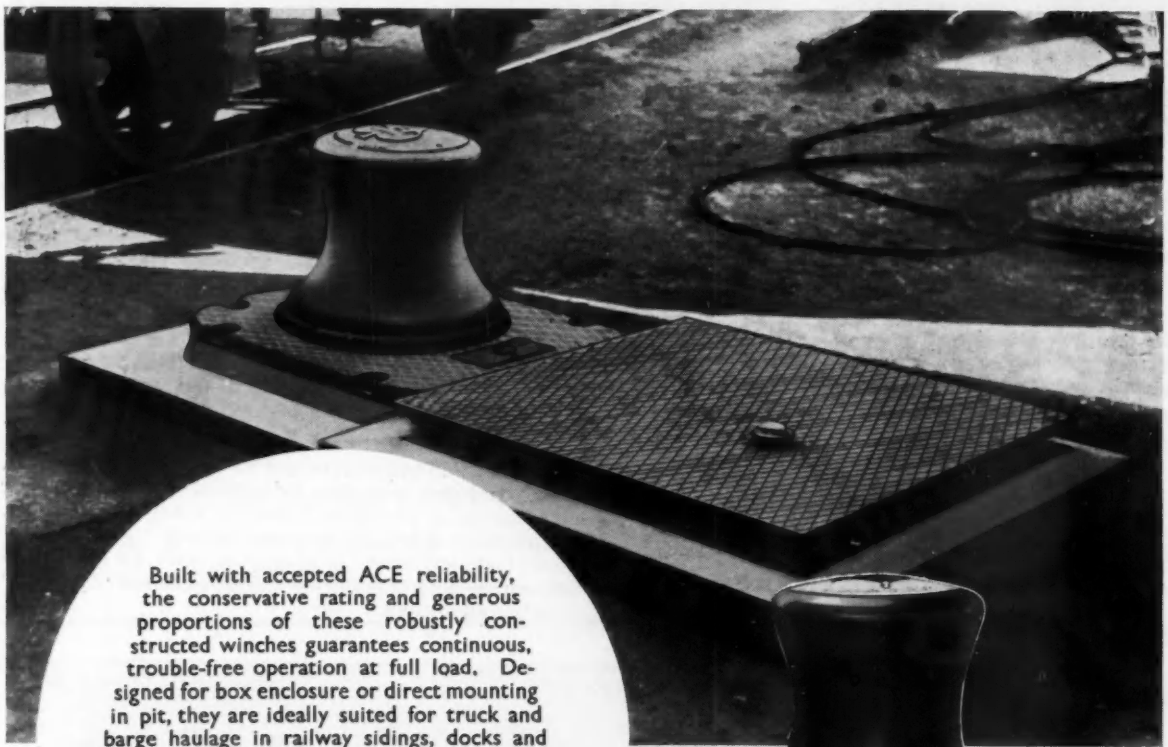
1 to 5 TONS CAPACITY



Built with accepted ACE reliability, the conservative rating and generous proportions of these robustly constructed winches guarantees continuous, trouble-free operation at full load. Designed for box enclosure or direct mounting in pit, they are ideally suited for truck and barge haulage in railway sidings, docks and harbours; and for moving furnace bogeys, mining trucks and kiln cars.

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For A.C. or D.C. operation.

Variable speed units employing dual motors can be supplied against specific enquiries.

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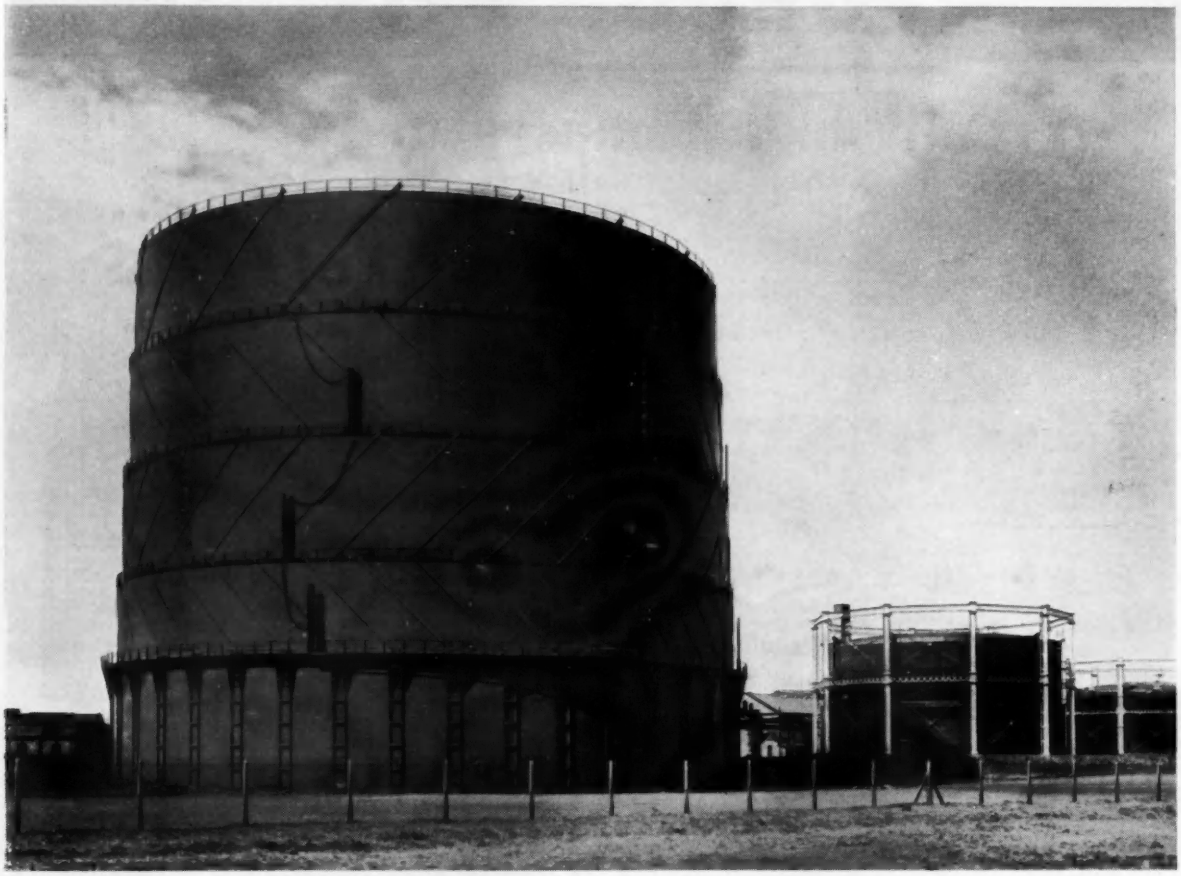
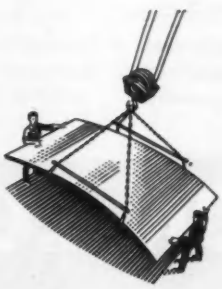
WHESSOE —

AT BISHOP AUCKLAND



WHESSOE BUILDS WELDED GASHOLDERS



This 4 lift gasholder, which was built at Bishop Auckland by Whessoe for the Northern Gas Board, has a capacity of 3 million cubic feet, its steel tank being 183′ 3″ in diameter.
Like all gasholders built by Whessoe it is of welded construction and possesses consequent advantages. These include complete tightness, avoidance of corrosion pockets and lower repainting costs. Contributing to the latter feature are the form of construction and the pre-treatment of all materials by the Footner Phosphoric Acid Pickling Process.
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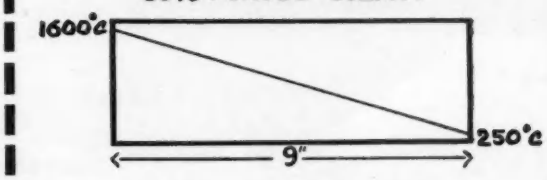
Further information will be gladly supplied on request.



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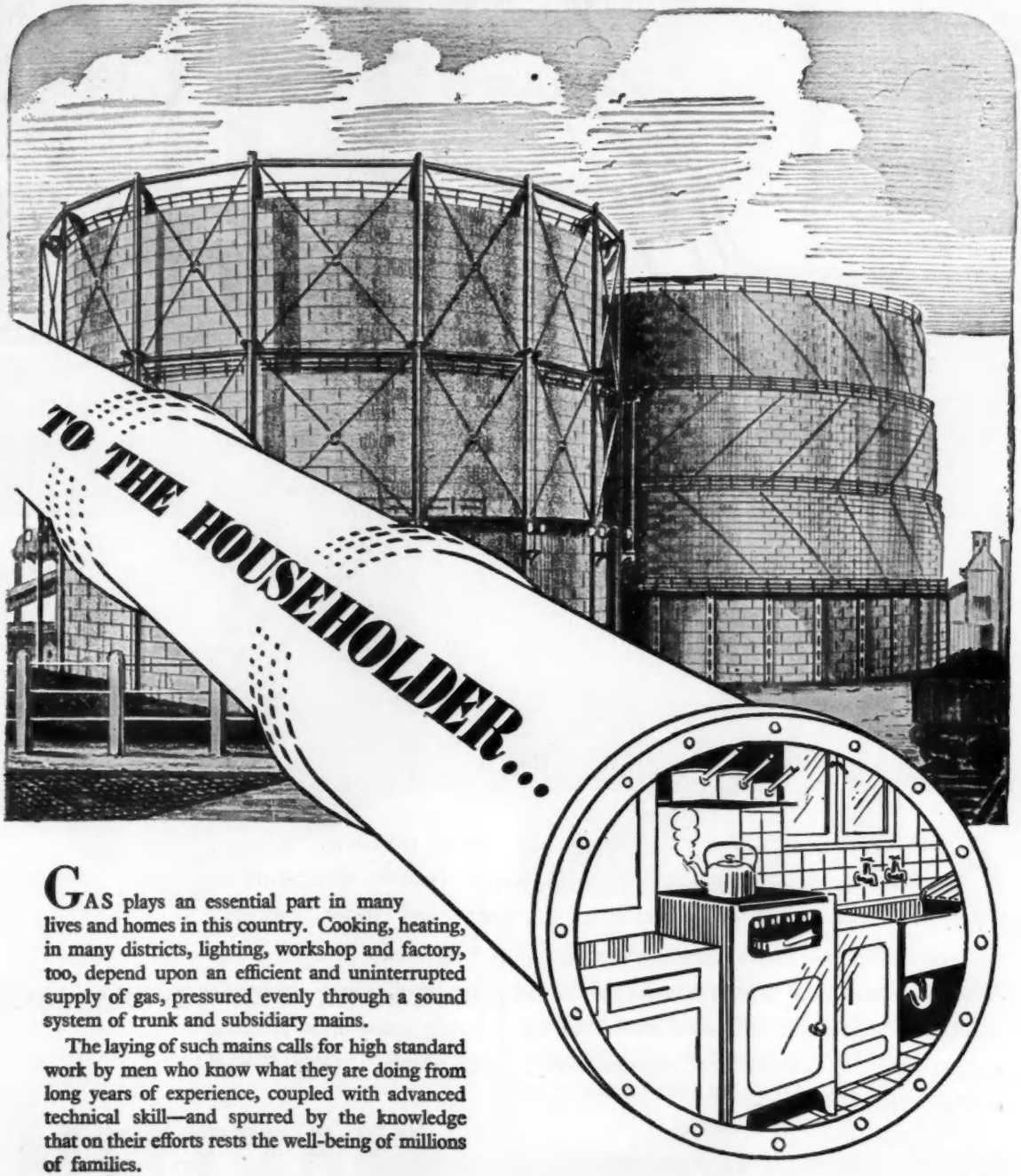

GAS plays an essential part in many lives and homes in this country. Cooking, heating, in many districts, lighting, workshop and factory, too, depend upon an efficient and uninterrupted supply of gas, pressured evenly through a sound system of trunk and subsidiary mains.

The laying of such mains calls for high standard work by men who know what they are doing from long years of experience, coupled with advanced technical skill—and spurred by the knowledge that on their efforts rests the well-being of millions of families.

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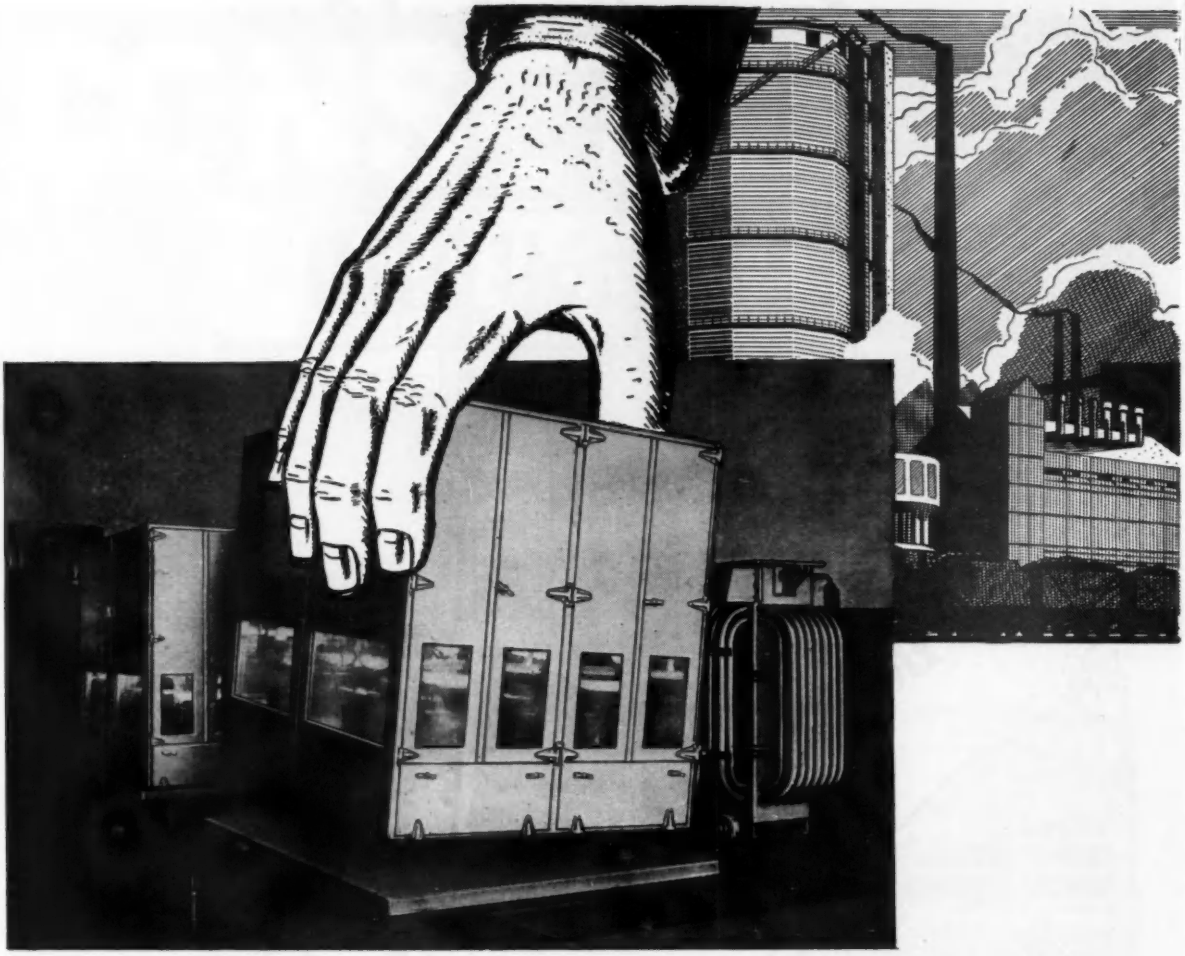

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Almost as simple to install as the illustration suggests, since no crane facilities or special foundations are necessary ; fitting easily into existing spaces (due to flexible unit construction) ; OPERATING COMPLETELY UNATTENDED.

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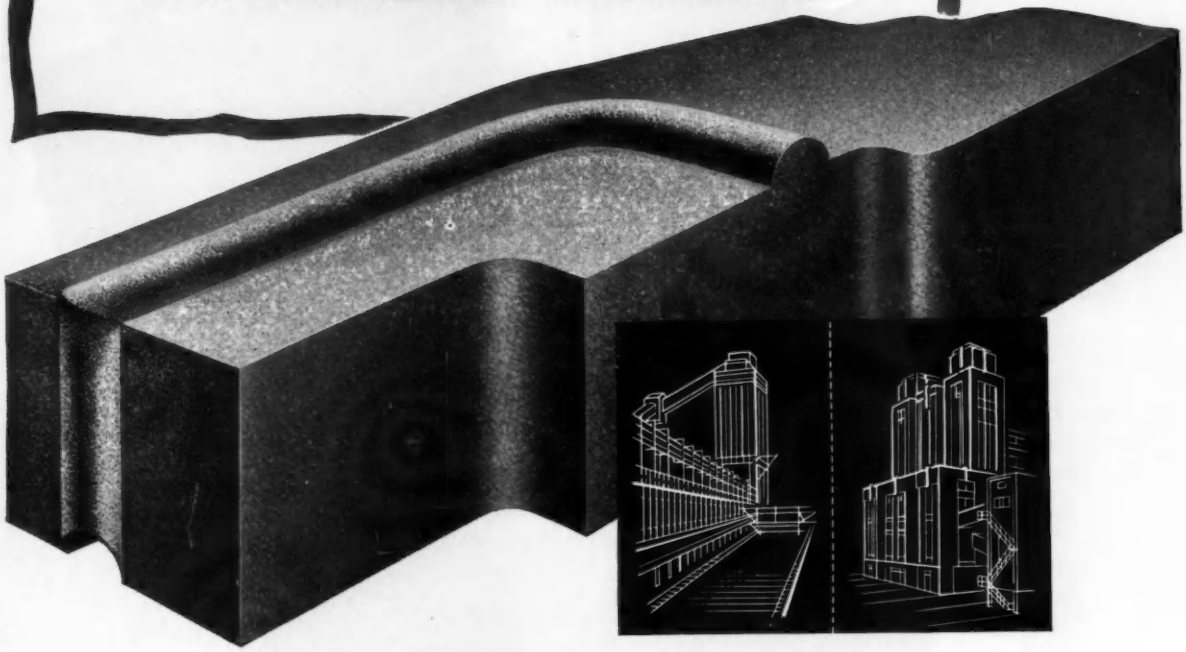

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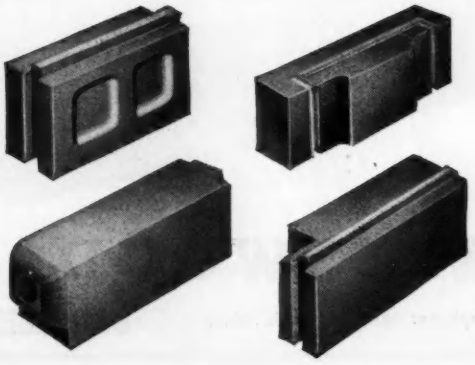

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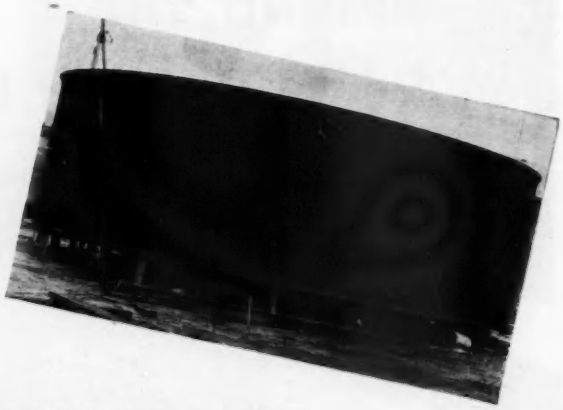

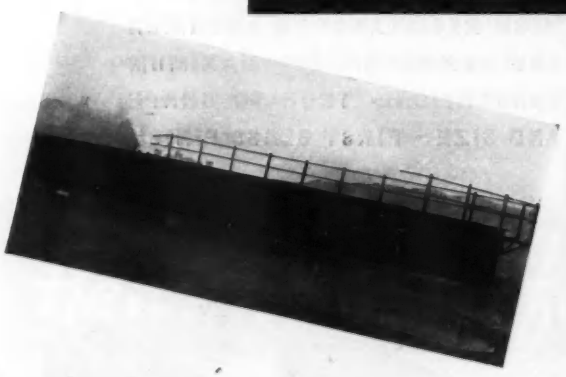

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Many valves available ex stock.

Valves designed for special conditions.

THE MAGNETIC SAFETY CUT-OUT VALVE

is of the semi-automatic hand opening electrically maintained pattern, ensuring instantaneous and complete closure in the event of current interruption. The valve is of "packless" construction, and can be supplied in sizes ranging from ¼ in. up to and including 12 in. Alternative types of hand operating gear are available including hand lever, and push-up spring return patterns. The installation of this valve is an essential precaution with all types of gas and oil fired equipment and ensures complete isolation of the fuel supply in the event of an interruption of the electrical supply WITHOUT automatic opening when such electrical supply is restored. A Flameproof solenoid housing, Buxton Certified, can be fitted where required.

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Two — 1250 kVA 415 volt 3-phase 50 cycle 1000 r.p.m. revolving field, closed-air-circuit salient pole type alternators complete with direct-coupled exciters supplied to W. H. Allen Sons & Co. Ltd., to provide power at Litchurch Works. The switchboard in the background is shown in the second illustration below.

The main low tension Distribution Switchboard controlling the two alternators, a 1000 kW grid supply feeder, 200 kW rectifier feeders, and various 600 amp. outgoing feeders.

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BUSHBURY ENGINEERING WORKS · WOLVERHAMPTON

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NEWTON, CHAMBERS & Co LTD
have pleasure in announcing
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THE COAL TAR RESEARCH ASSOCIATION
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THE DESIGN, MANUFACTURE, SALE
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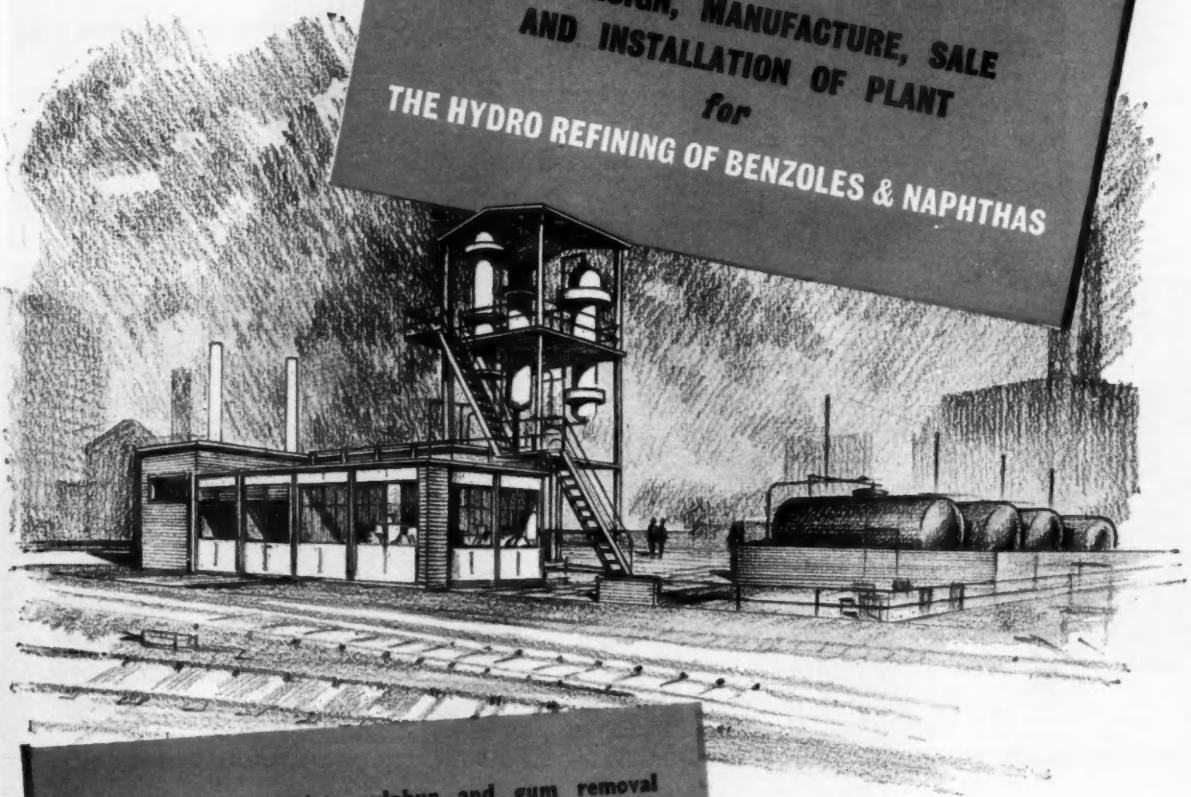

- Substantially complete sulphur and gum removal
- Increased yield of Motor Benzole
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- Pilot Plant available for testing Customers' Feed Stocks

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A few of the many—

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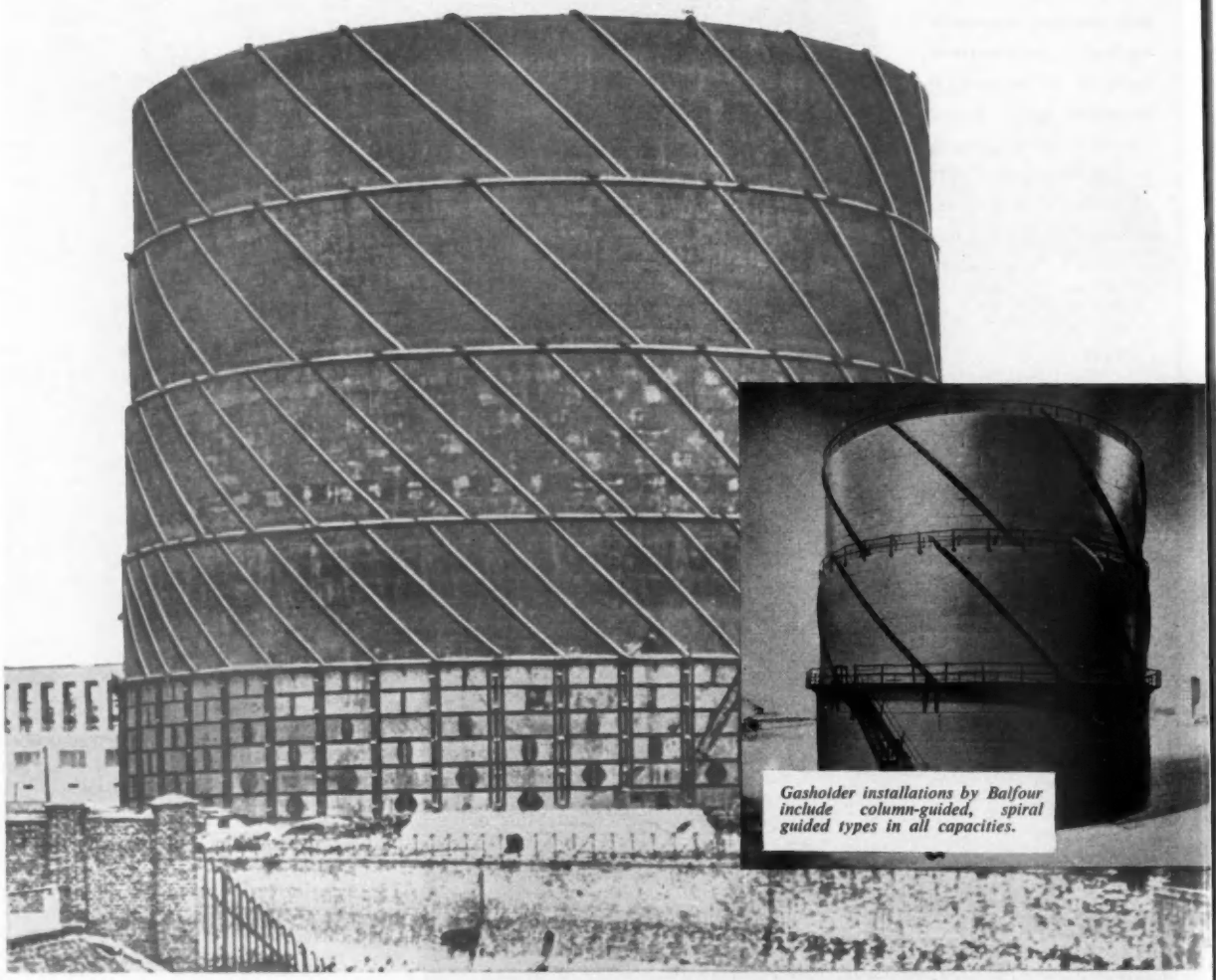

Gasholder installations by Balfour include column-guided, spiral guided types in all capacities.

The largest spiral gasholder in Belgium was Balfour-built and has a capacity of 4,500,000 cu. ft.

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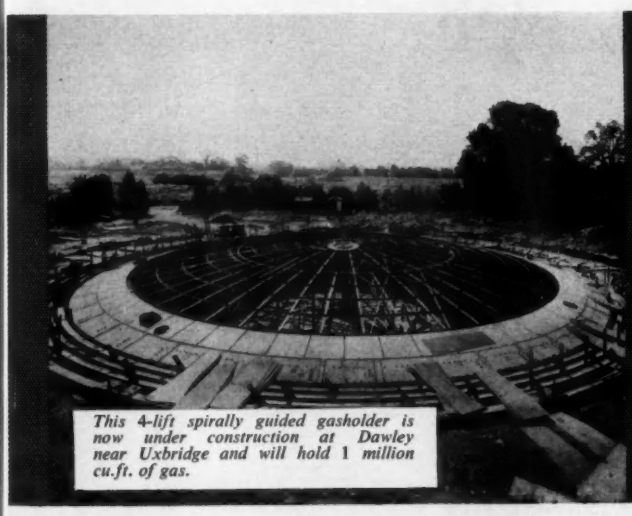
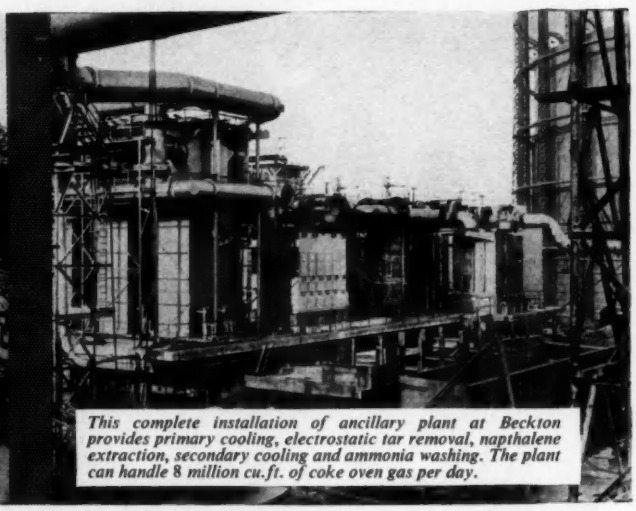
GASHOLDERS

DESIGNING and building gasholders for all gas requirements is one of the many Balfour skills. Gas production, purification, storage, the recovery of by-products—whatever the problem, Balfour engineers are ready to assist.



This 4-lift spirally guided gasholder is now under construction at Dawley near Uxbridge and will hold 1 million cu.ft. of gas.



This complete installation of ancillary plant at Beckton provides primary cooling, electrostatic tar removal, napthalene extraction, secondary cooling and ammonia washing. The plant can handle 8 million cu.ft. of coke oven gas per day.

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Partners of the Balfour Group

To All

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George Wilson Gas Meters Ltd.

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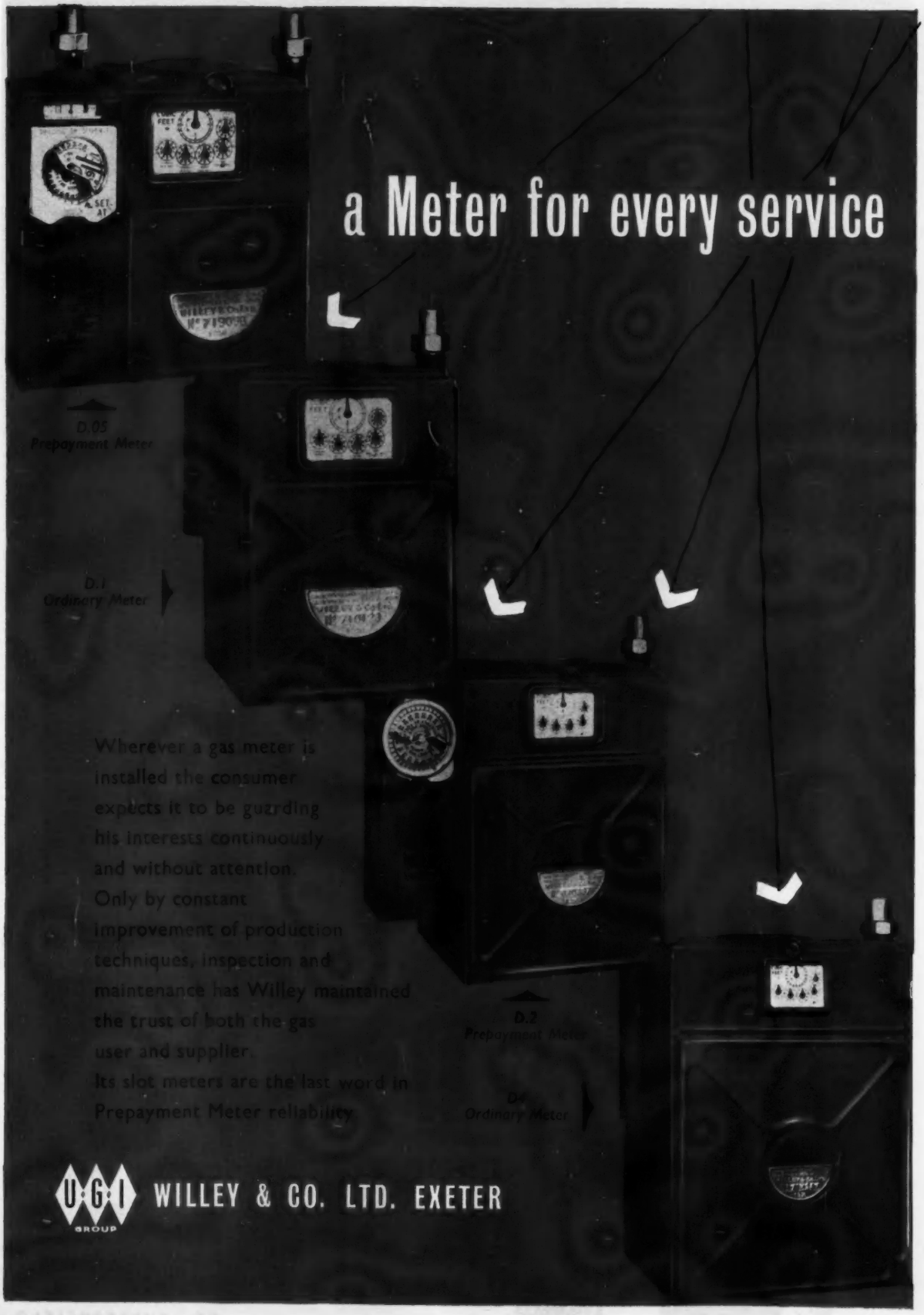
Sincere Greetings and Best Wishes

for this

Festive Season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Wherever a gas meter is installed the consumer expects it to be guarding his interests continuously and without attention. Only by constant improvement of production techniques, inspection and maintenance has Willey maintained the trust of both the gas user and supplier. Its slot meters are the last word in Prepayment Meter reliability.
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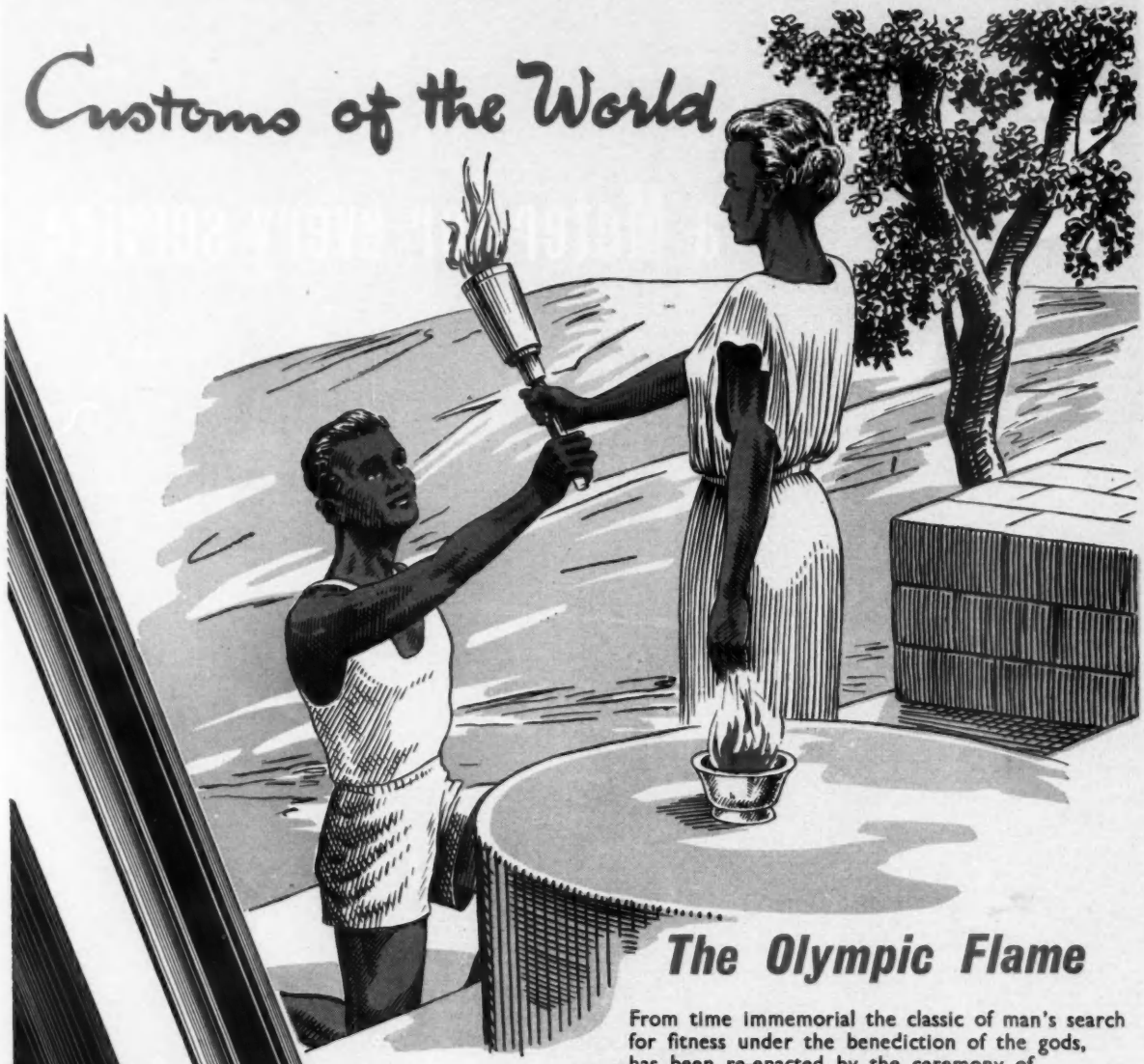

The Olympic Flame

From time immemorial the classic of man's search for fitness under the benediction of the gods, has been re-enacted by the ceremony of the Olympian runners with the torch.

The constant search for perfection, and fitness for purpose has, too, been the prime motive behind Staveley's production of Pipes for those who provide the gas, water and sewage mains for modern communities throughout the world.

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SAND & METAL SPUN PIPES
(with Run-Lead or Flexible Joints)
FOR GAS & WATER MAINS

THE STAVELEY IRON & CHEMICAL CO. LTD.,
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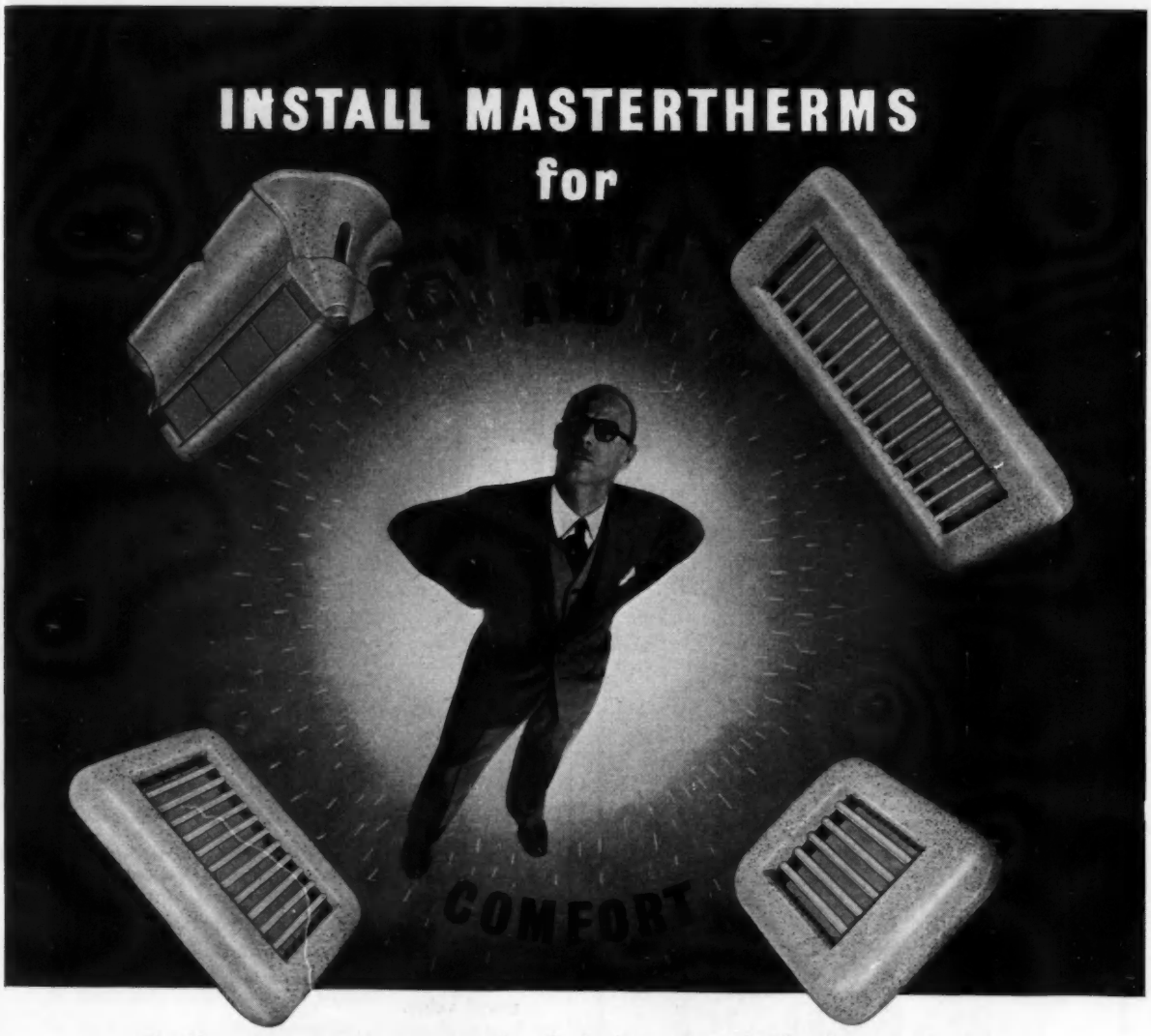

The Mastertherm range consists of four finely designed overhead radiant gas heaters, each of which effects considerable saving in both money and valuable floor space. Costing little to install or operate, Mastertherm heaters give high radiant efficiency and ensure even distribution of heat over floor area.

As wall or suspension fittings they can be tilted at any angle from 30 to 75 degrees, distributing radiant heat —the healthiest known—downwards and outwards over an exceptionally wide area.
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Heats up to 125-150 sq. ft. of space.

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Heats up to 250-300 sq. ft. of space.

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Heats up to 375-450 sq. ft. of space.

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A double sided heater for small offices, corridors, cubicles—wherever a larger heater is unsuitable, (Heats 150 sq. ft.)

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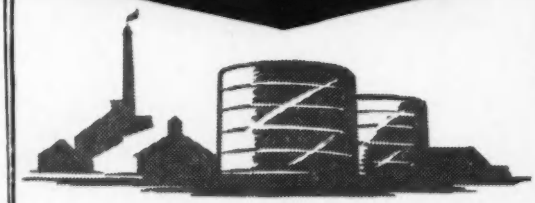
Smee's

Reduce Gas Holder Maintenance!

"HUMIDINE" AND THE ALKYD SYSTEM



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Where it is not possible to use a Non-Setting Paint use Aspinalls' Alkyd Gasholder Setting Paints.

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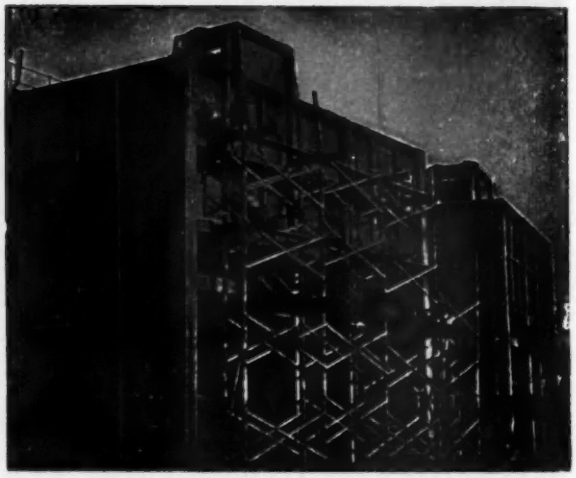
Gunite



One of the reinforced concrete structures reconditioned with Gunite at the Carlisle Works of the Northern Gas Board

Gunite—concrete applied by air pressure—has numerous applications where its great density and extreme adhesion have exceptional value.

For repairing reinforced concrete it has particular merit, as, due to the method of application, a uniform density and adherence is obtained whenever Gunite is applied.

For lining coal bunkers and steel chimneys it possesses great resistance to corrosion and protects steel-work from the abrasive action of coal or coke.

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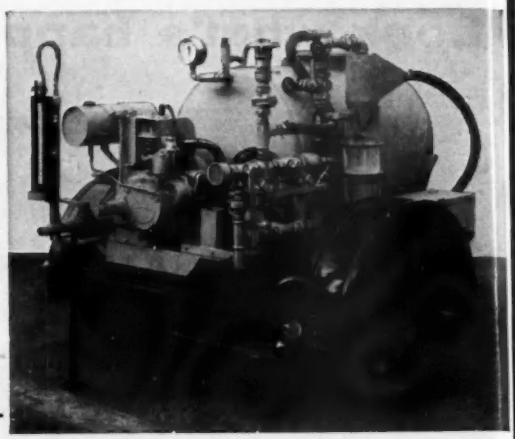
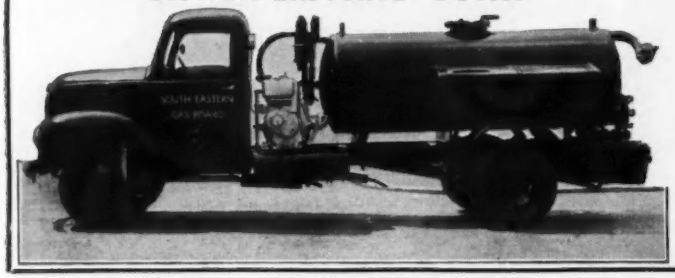
The 75 gallon Allan Taylor pressure/vacuum service cleaning equipment complete with exhauster which can be used for vacuum or pressure. Normally used as a trailer unit and towed by a 10 cwt. van. Visible in the photograph (*right*) are the cyclone and test bar. This additional equipment enables the operator to make pressure tests before and after cleaning the service pipe, the test taps passing 50 cu. ft. or 100 cu. ft. as required. By using the Cyclone the dust drawn from the service pipe is deposited in the sight glass for inspection and can then pass into the easily removable container below. The arrangement further enables the operator at the machine to determine whether or not there has been any success with a cleaning operation. The extractor also prevents the greater part of the rust dust from entering the 75 gallon cylinder.



SYPHON EMPTYING OUTFIT



The Vacuum Syphon Emptying Outfit illustrated is mounted on a 4 ton **Thames** Chassis. A 600 gallon galvanised tank is fitted. A rotary type exhauster is driven by a 4 b.h.p. four-stroke air cooled engine, mounted on a sub-frame behind the cab. The tank is fitted with a flame-proof vent and the outfit can be used for high or low pressure syphon emptying. A large manhole at the rear allows the tank to be cleaned easily. A sight glass is fitted to enable the operator to know when the Syphon is emptied. Twenty-five feet of 1½ in. suction hose is supplied with the outfit. The outfit can be used for vacuum or pressure working.

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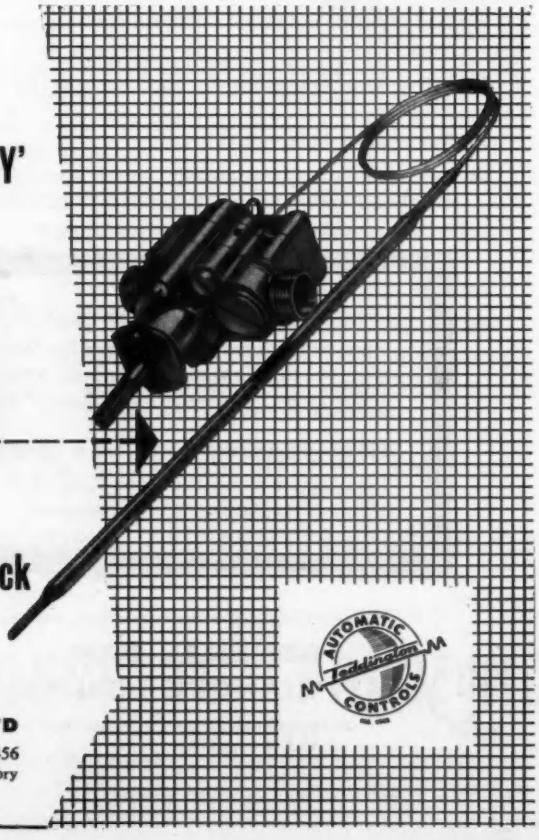

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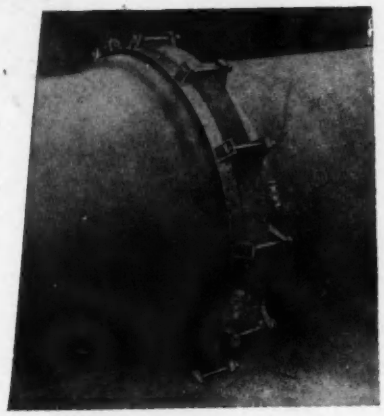

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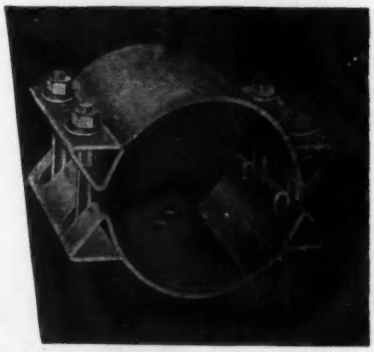

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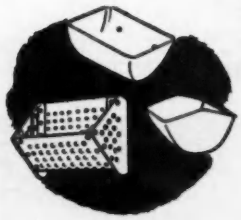

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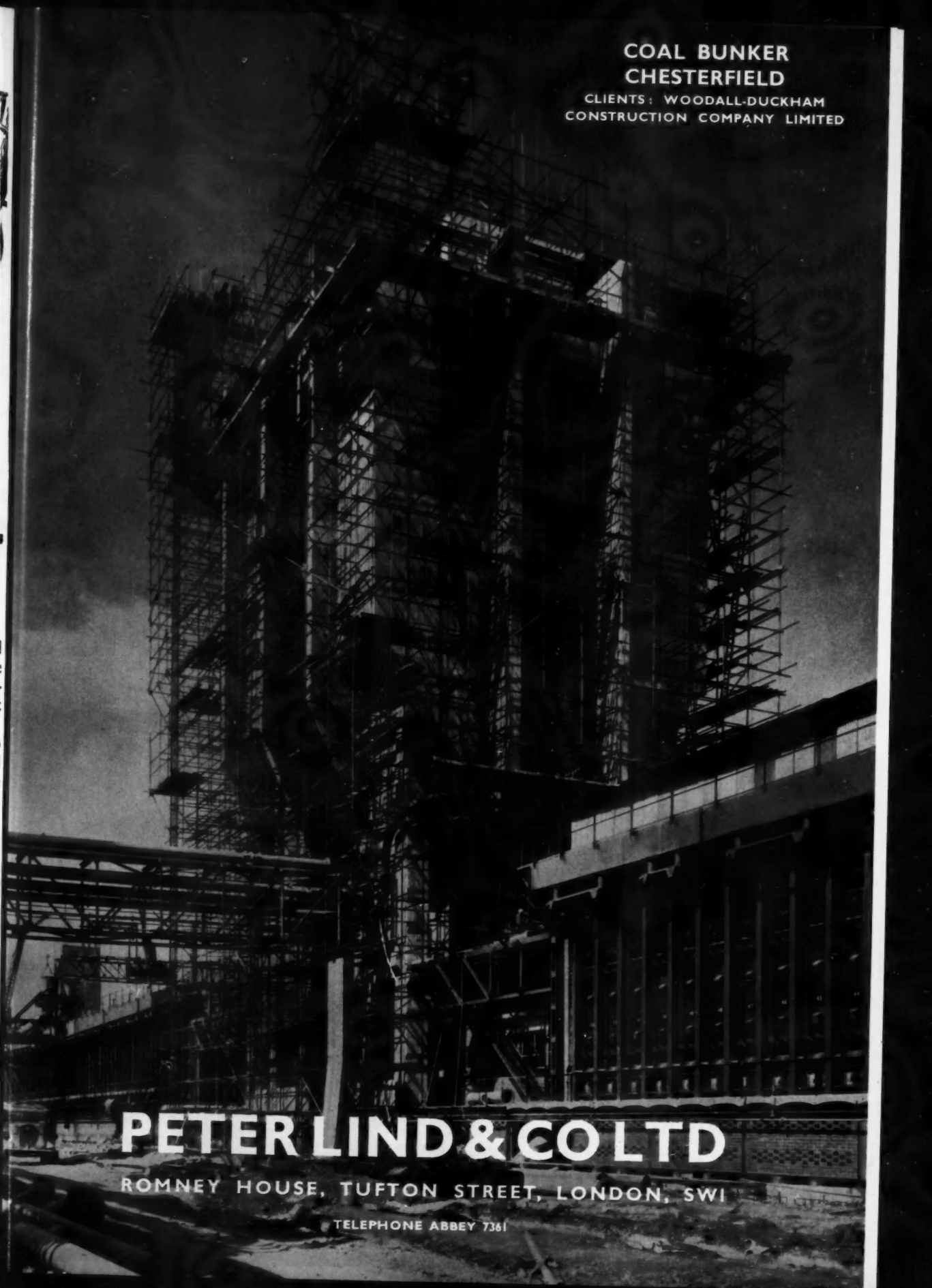
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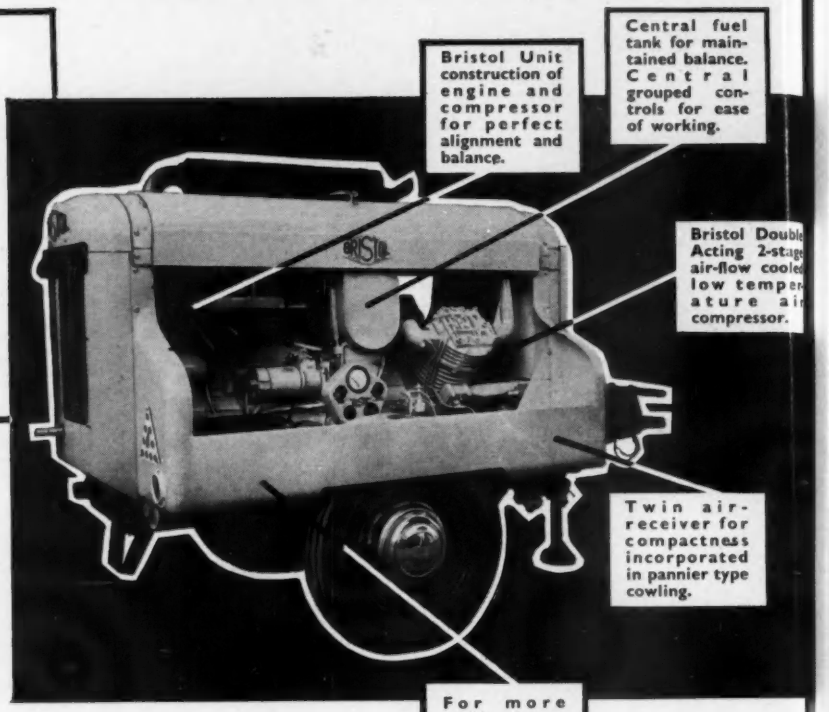
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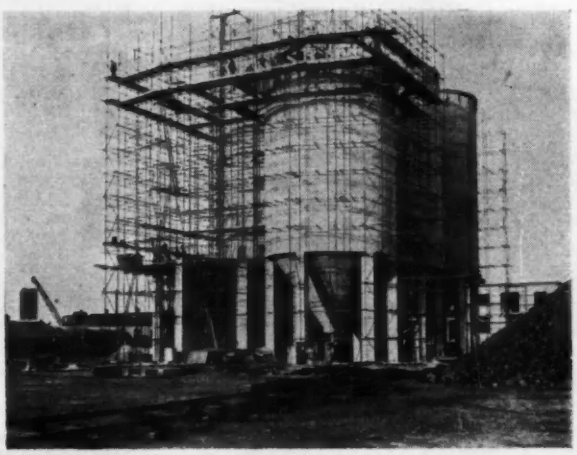

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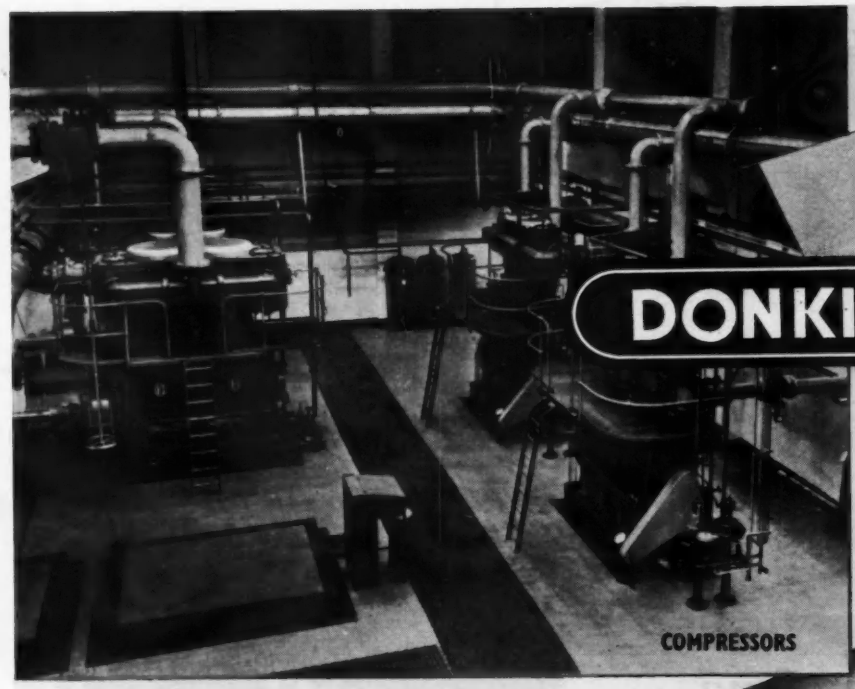

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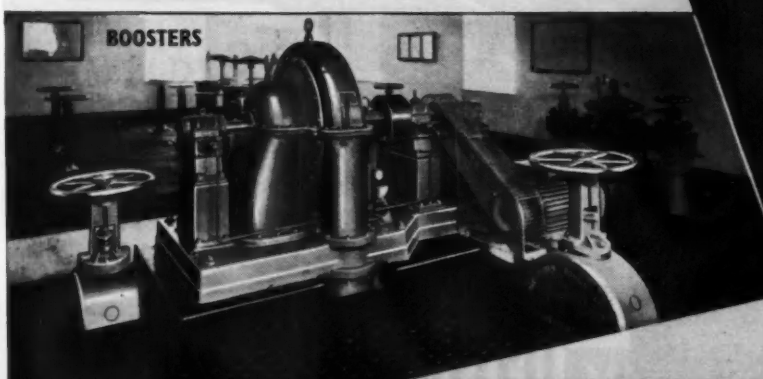

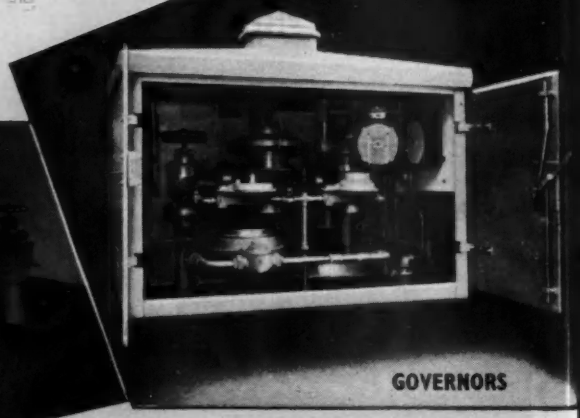

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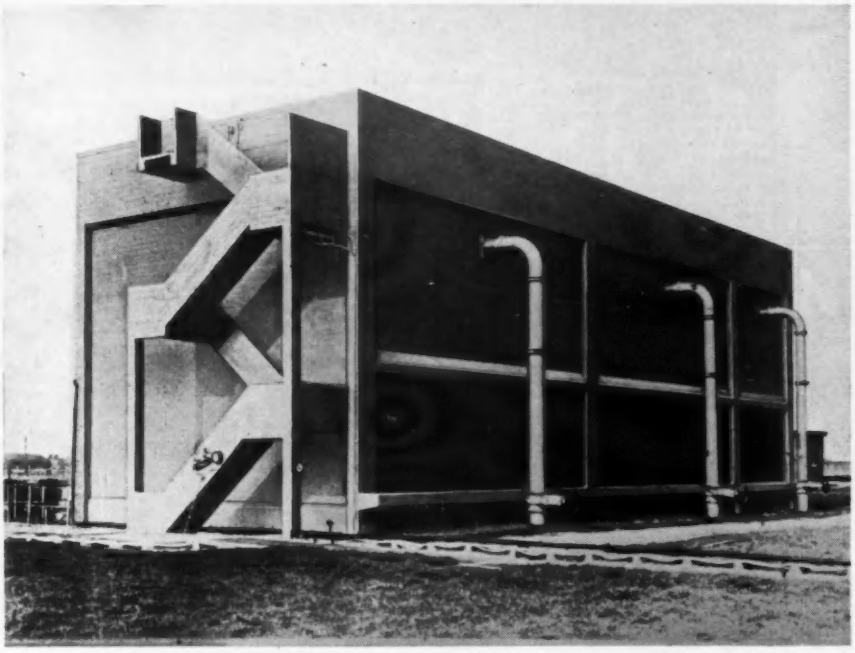

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They are believed to be the only British units incorporated in the scheme and were designed and supplied by

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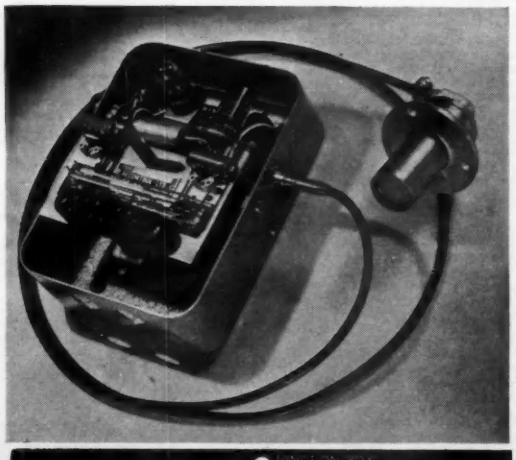

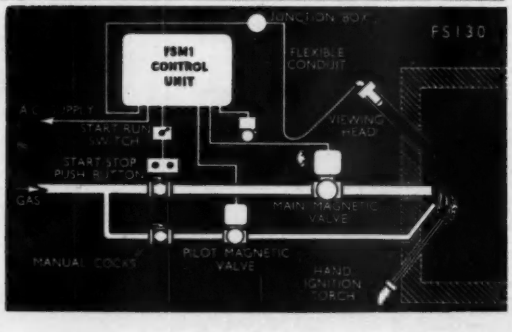

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Gas Journal

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109TH YEAR

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Gas Journal

VOLUME 292. No. 4928. DECEMBER 25, 1957. 109th YEAR

The 'New Look' Industry

LOOKING at the overall picture of the past year, perhaps the most significant feature has been the gathered momentum toward the 'new look' gas industry of tomorrow; the ever growing pace of research into and development of new techniques of gas manufacture all aimed at a cheaper, better, and more competitive therm.

Already in operation in increasing extent or on the way are high and low pressure total gasification plants able to use the more plentiful and cheaper grades of small coal; and catalytic and thermal oil gasification plants developed to use a wide range of petroleum products—including hitherto wasted refinery tail gases—so that the gas industry can purchase its fuel according to what is in greatest supply and therefore at the most advantageous price.

In addition, some indigenous natural gas is now being supplied to consumers, while imports of liquid natural gas are significantly nearer. Drainage methane from coal mines, as well as coke oven gas purchases, have been stepped up.

But undoubtedly the greatest development still lies before us—the hydrogenation of coal carried out under pressure. Once this progresses from the development stage, the gas industry will be in a very strong position; and with so much already achieved and so much 'just around the corner,' the future can be viewed with confidence.

But, of course, the present is not without its difficulties. These were brought home to us by the Minister of Power, Lord Mills, at the Autumn Research luncheon only recently. In fact there were misgivings over what were taken by some as harsh and even hostile words—indeed, we questioned in our editorial columns whether the Minister had made a promise or a threat.

However, there are others who hold a very different view: That Lord Mills was, in fact, telling the industry that it was proceeding along the right lines, and merely pointing out that it must continue to do so in order to hold its own in an ever more competitive world. What exactly were we hoping for, ask those who hold this view—a stream of complimentary platitudes? Surely this 'down-to-earth' talk to dispel complacency and put us on our guard is a great deal better?

However, there are real causes for misgiving. Chief among these, perhaps, are the latest capital restrictions. Good, steady progress has been made by the area boards toward the goal of integration; production efficiency has continued to increase; the national gas grid forecast by Sir Harold Smith, Gas Council Chairman, has seemed to come closer to reality, to be less of a dream of the future.

But programmes will now have to be appreciably cut. Following the previous year's restrictions, they will in many cases have to be limited to absolute priorities, to the basic essential of maintaining gas supplies.

These restrictions hit at the very economic advantages of development. One of their most unfortunate and far reaching effects will be that, in a world of ever rising costs, when development can be resumed it will be carried out at far greater expenditure than would be needed now. The industry is thus the loser all round.

Another real—and long-established—cause for misgiving is the continued victimisation of the gas industry by purchase tax and hire purchase restrictions on the sale of gas appliances to the great benefit of solid fuel and oil burning appliances. This is a serious matter for the industry and the manufacturers of gas appliances alike. And while it is true that the same conditions surround the sale of electrical appliances the effects are not comparable.

There is the lower cost at which many electrical appliances can be produced; and the fact that the electricity industry does not play the same rôle in the marketing of appliances as does the gas industry so that it does not sustain a comparable loss of revenue. It will be a great day for the gas industry when this purchase tax anomaly is removed.

And anomaly it is with the Clean Air Act on the Statute Book, the dollar gap, and the country's overall financial situation. The position has been described in the House of Commons as 'lunatic'—and, indeed, it is.

From other points of view, progress toward clean air

We Wish All Our Readers

a Happy Christmas and a Prosperous New Year

and its impact on the gas industry have not been unsatisfactory. The campaign is beginning to get into its stride, and supplies of fuel are likely to fit in with its progress.

There have been complaints that this progress has been too slow, but, in the nature of things, it must be a gradual process. Appliances must be changed or modified, supplies of smokeless fuel assured—a smokeless zone cannot be declared until full preparations have been made.

However, when clean air comes it will bring substantial benefit to the gas industry. And the industry is confident that it will be able to meet the demands that clean air makes upon it.

New Plants in 1957

NOW let us turn to the new plant which has been completed during the past year. In such a review as this it is instructive to compare the differences in techniques employed in manufacturing the chief product of the industry and to try to detect in which direction those techniques may be veering. It will be remembered that in our Annual Review Number of 1956, when we briefly reminded our readers of plants commissioned in that year, with the exception of the National Coal Board's plant at Avenue, near Chesterfield, all the plants described were equipped with continuous vertical retorts. The chief feature stressed was the development of waste heat recovery and the use of the steam raised in this way for the generation of electricity for the production of power in the works. Here indeed was a step forward—an all electric gasworks.

In 1957 the pattern to be seen among the gas-making plants commissioned was quite different. Nationalisation of the industry took place in 1948, about eight and a half years ago. In that period those plants which had been conceived either shortly before, or shortly after, nationalisation, were completed, and enough time has elapsed for these early plans to come to fruition. The large centralised gasworks have been built and commissioned. The newest ideas of heat conservation have been proved and found to be of great assistance in reducing the cost of gas into holder, as well as the amount of solid fuel to be consumed in the works.

In 1957 the new plants commissioned and briefly referred to in this issue vary a great deal in their methods of gas making, and with the exception of our description of plants either lately commissioned or building in Scotland, and the new works at Litchurch, Derby, none are continuous vertical retorts. The larger plants have intermittent vertical chambers while the smaller plants are examples of complete gasification and oil gasification by the Onia-Gegi system. (We have also included for the sake of completeness a brief reference to the new Rexco plant at Mansfield, though this is not a gas-making plant so much as a means of making smokeless fuel.) It is reasonable to suppose, therefore, that there may be a change taking place in the policy of the area boards towards the type of gas-making plant to be built in the future.

It is becoming abundantly clear that the use of the best coking and gas-making coals, which are also the most expensive, should be left for the use of the coking industry, the wellbeing of which depends on the production of a really hard, strong, metallurgical coke for the exclusive use of the blast furnace and foundry industries. The surplus gas which is the inevitable by-product of this process can be used by the gas industry as a contribution to base load gas supplies. The industry itself will be looking to some process which will be more flexible than the conventional carbonising process but capable of producing large quantities of a suitable gas from the very cheapest raw materials, probably without any saleable solid secondary product.

In our review of the new plants either commissioned or building in Scotland we have attempted to show how this particular Board is solving problems which do not occur in other board areas, except possibly in Wales. Scotland contains a central industrial area in which anything up to 80% of the gas made is consumed, the remaining 20% being consumed over the rest of Scotland, including the Hebrides, Orkney and Shetland. The medium sized works in Scotland are still very much in existence and likely to remain so since they are too far away to be economically linked up to a large centrally situated production unit.

The new plant at Litchurch gasworks outside Derby is outstanding for its very up-to-date layout. The site which is extensive allows plenty of room for the proper planning of the ancillary plant and a standard of cleanliness and good working conditions which is most striking.

Of the other carbonising plants, the new works at Kingston, Isle of Wight, and Lostock Hall, near Preston, are both intermittent vertical chamber plants, but built by different contractors. The former is of interest in that it is situated on a spit of land which lends itself to being able to receive all supplies by sea. This includes assisting in the supply of coal to the local power station which is on an adjacent site.

The plant at Lostock Hall, in the North Western Board's area near Preston, is somewhat larger. Unlike the Isle of Wight plant, it is not built on a virgin site but forms part of an extension to a works built there about 30 years ago. The most interesting features are the ventilation of the retort house, and its design and that of the coal and producer fuel bunker house next to it.

Of the other two gas-making plants, the complete gasification plant by the Power Gas Corporation, Ltd., at Watford is only the second plant of this type to be commissioned so far. The other, a G. I. Plant at Kensal Green, was described in a paper presented to the Institution of Gas Engineers at its Autumn Research meeting. These plants may be the forerunners of many others of a similar type. There are always many difficulties to be overcome when Continental designs are applied to British coals and practice. These are being solved and a gas of about 360 B.Th.U. per cu.ft. is being made, to be upgraded by other gas available locally.

The new Onia-Gegi plant at Carlisle is the first plant of its kind to be fully regenerative. It has an output capacity of 1 mill. cu.ft. per day and is fired on its own tar. It is very flexible and in a district like Carlisle which never has difficulty in disposing of its coke, the making of a suitable town gas from oil in one step is distinctly attractive.

Gas Industry Craftsmen Win Pay Increases During Year

Industrial Relations

INDUSTRIAL relations in any industry can never be completely static because they are concerned with human beings. They are, therefore, ever dynamic, needing fresh adaptation to changing conditions in the personnel field.

In the field of industrial legislation alone, there are constant changes and adaptations in the social insurance field, for example, of which account has to be taken from time to time. There are also periodic movements in the codes of practice adopted by industrial employers, to which attention must always be directed. The gas industry, as a great and important industry, is not immune from such influences, and has to keep them under constant surveillance.

Sick Pay Revision

In comparable industries in the manual workers' field, payment was made to an employee in respect of the first three consecutive calendar days of each period of sickness. The gas industry introduced a revised sick pay scheme as from January 1, 1957, under which payment of allowance is now made for the first day of absence, where the absence lasts for 12 consecutive days or more.

There was a general wage movement in industry towards the end of 1956, and the beginning of 1957, and the unions submitted an application for a wage increase to the industry during that period. After considerable discussion, the National Joint Industrial Council agreed an increase on the standard rates for adult male dayworkers and for shiftworkers, to be applied as from Sunday, March 31, 1957. Consequent upon this increase, appropriate adjustments were made in the rates of pay for piece workers, female workers and gas workers under the age of twenty-one.

Craftsmen

Apart from the employees coming within the jurisdiction of the National Joint Industrial Council, the gas industry employs, of course, a considerable body of craftsmen. These craftsmen, apart from bricklayers, masons, and gasfitters, are generally called maintenance craftsmen. This phrase is useful in that it enables identification of those who come within the jurisdiction of the machinery set up between the Gas Council and the Confederation of Shipbuilding and Engineering Unions, a substantial federation of craft unions.

The Confederation submitted a claim to the gas industry in July of this year for a substantial increase in the pay of such maintenance craftsmen employed in the industry. After the claim had been subjected to detailed examination, an increase was agreed for all classes of craftsmen covered by the Craftsmen's National Agreement, such increase to apply as from Sunday, May 12, 1957.

This agreement was subject generally to the Confederation undertaking not to submit another application for a further wage increase within twelve months of the operative date of the agreement, and the unions concerned gave an assurance that they would continue to co-operate with the employers in promoting greater efficiency.

Gas Fitters

Other very important craftsmen employed by the industry are, of course, gas fitters. The National Joint Industrial Council, within whose jurisdiction they come, decided that they should receive the same increase as maintenance craftsmen, in view of the skill and qualifications required of them, to apply as from May this year.

The Workers' side of the National Joint Industrial Council gave a similar assurance to that given by the Confederation of Shipbuilding and Engineering Unions, namely that in respect of gas fitters, they would not seek a further increase until twelve months had elapsed from the operative date of the award, unless special factors causing an emergency required the situation meantime to be reconsidered.

These increases granted to craftsmen would apply automatically to the standard rates of pay for bricklayers and masons employed in the industry, for the Amalgamated Union of Building Trade Workers, the Union with which the gas industry has established negotiating machinery through the Refractory Users' Federation in respect of these employees, has agreed to accept for their members employed in the industry the standard rates of pay laid down from time to time by by the Gas Council and the Confederation of Shipbuilding and Engineering Unions for maintenance craftsmen.

On the Refractory Users' Federation sit representatives not only of the Gas Council but of the contractors' organisations as well, since the negotiating machinery established between the Refractory Users' Federation and the Amalgamated Union of Building Trade Workers deals with the terms and conditions of employment not only of bricklayers and masons employed within the industry but those employed by the contractors' organisations themselves.

Sunday Work

Other matters which the National Joint Industrial Council examined were the question of payment for Sunday work to day workers and payment for overtime on Christmas Day and Boxing Day. Through the Gas Fitters' National Classification Scheme Sub-Committee, certain questions regarding the period of apprenticeship and the examinations of the City and Guilds of London Institute were also considered.

Movements in the field of remuneration in the period under review also affected staffs, and various graduated increases to staffs coming within the purview of the National Joint Council for Gas Staffs were agreed, after detailed discussions, to be applied as from May 1 this year. In January this year, the second stage of the scheme of equal pay for equal work commenced to operate. The Joint Council also ratified a new handbook of salaries and conditions of service for staffs. Many other aspects of terms and conditions of employment of staff were considered and settled during the period under review.

Intermediate Status

The National Joint Standing Committee for Intermediate Grades deals with those employees who are in status intermediate between manual workers on the one hand and staff on the other. This National Committee also considered in the same period an application for increase in the rates of pay for this class of employee and graduated increases were granted, to operate as from April 14.

An application for a salary increase on behalf of senior officers in the industry was considered by the Senior Officers' Joint Council, and a settlement was effected which provided for graduated increases for senior officers who had not by ballot opted out of the jurisdiction of the Senior Gas Officers' Joint Council, or whose exclusion by occupation had been agreed by the Joint Council. These graduated increases commenced to operate as from July this year.

London and the Midlands have been for many years difficult areas for all industries in the matter of recruitment. It is gratifying to be able to record that, as far as the gas industry is concerned, even in those areas, recruitment has for some time become easier, with a lower turnover of labour, that very expensive item in any employer's budget.

Stable and Progressive

There is a greater tendency to regard the gas industry as a stable and progressive industry and one in which it is very worthwhile to carve out a career. This has reflected itself also in the greater availability of apprentices, which is a very important development.

This improvement in recruitment is, therefore, not merely due to recessions in other industries, but also to the increasing and progressive availability in the area boards of training and educational schemes of all kinds and a greater awareness of the sound career prospects in the industry.

It is not without interest in this connection to record the tradition of long service in the industry. The Annual Report of the Council records that last year the North Thames Gas Board, with the largest number of employees, presented 153 of them with awards for 40 years' service; and that of these, six had completed over 50 years. Wales, with the smallest number of employees, awarded its 50 years' certificate to four of them, and its 40 years' certificate to 17.

Mr. Richard Dixon, an appliance maintenance man, employed by the North Western Gas Board belongs to a family which has given over 250 years' service. His father was 47 years in the industry, and Mr. Dixon this year had put in 43 years. He was one of the employees presented with a British Empire Medal by the Minister of Power this year. An industry which can show records of service like this can be justifiably proud of its reputation as a good employer.

The number of full-time medical officers and of state-registered nurses employed by the area boards has steadily increased, with the establishment of more dressing stations and surgeries. The industry has now 20 full-time medical officers, with 14 more employed for a substantial part of their time. The Boards' full-time services are also, where necessary, supplemented from time to time, by assistance from consultants and general practitioners.

The year under review saw a continuous expansion of the facilities provided by the gas industry in the field of education and training. They are generally based upon the general programme of education and training approved by the Minister of Fuel and Power in 1952, and accepted by all area boards as a guide.

In this programme, provision is made for the release of employees during working hours in order to take study courses, for the payment of fees and expenses to those employees following courses which have been approved by the area boards concerned, as well as for pupilage and apprenticeship schemes. It can be said that by and large the programme is one which is regarded as the minimum practice within the industry. In other words, area boards can develop their own programmes further than the recommendations embodied in the general programme.

Two Advantages

This method is considered to have two advantages: it provides adequate provision for education and training, and also allows for flexibility to meet local problems in accordance with local facilities. Full use is made, where necessary, of the educational facilities provided by local education authorities.

Most area boards have now full-time Education and Training Officers. They meet from time to time as a Conference of Area Board Education and Training Officers in order to exchange information and for the discussion of all educational and training problems. In this way it is hoped that all employees of the industry will have the same educational facilities available to them, where practicable, and should not depend on the geographical locality in which they are placed.

Consequent upon the increasing amount of training being carried out by the area boards, the range of subjects covered by such courses is very wide, and during the year there have been striking developments in training in the field of sales and service and supervision. A great deal of work is also being done in the training of mains and service layers.

Apart from the training carried out by the area boards themselves, a very large number of employees have been attending day and evening courses, or have been undertaking correspondence courses in technical and commercial subjects. Many of these are studying for qualifications in administrative, secretarial, and accountancy subjects.

During the period under review a great many employees were allowed the opportunity of attending courses conducted by universities, local education authorities, manufacturing firms, professional associations, and the like. A number of apprentices from many area boards were sent to 'Adjustment to Industry' or character training courses run by organisations such as boys' clubs or the Outward Bound Trust.

Gas fitting continues to be among the forms of training most extensively undertaken by the area boards. Employees who wish to qualify as gas fitters do so under the Gas Fitters' National Classification Scheme, which was introduced in 1953, and is administered by a Sub-Committee of the National Joint Industrial Council.

After four years' experience of administering the scheme, it can be said that generally it is adequate for the purpose for which it was established. No such scheme, of course, can be static and it is amended from time to time to meet changed circumstances.

The training of gas fitters generally takes the form of daytime release and attendance at evening classes, along with training on the job. Those arrangements are supplemented, however, in some boards by full time instruction at a board's training centre, lasting several months.

Sandwich Courses

The facilities for sandwich courses in gas engineering have now been concentrated in four colleges—the Royal Technical College at Salford, the Birmingham College of Technology, the Westminster Technical College, and the Enfield Technical College. During the 1956-57 educational year, there was an increase of over 50% of students attending all types of sandwich courses, compared with 1955-56.

In April of this year, the Gas Council, in conjunction with the Eastern, North Thames, South Eastern and Southern Gas Boards, ran a short works course for public schoolboys with the object of explaining the functions performed by the industry and drawing attention to the career opportunities within it. The boys were drawn from public schools all over the country. The results were such that the Gas Council has decided that a further course should be run in 1958.

During the course, visits were made to a manufacturing station, a distri-

bution network, research laboratories, and a mechanical accounting system. Talks and the showing of films relating to the various activities of the gas industry were features of the course, ending with an 'any questions?' panel on careers in the gas industry.

Turning, in conclusion, to training for management, the Gas Council held four further residential courses in the year under review, at Brooklands County Technical College, which were attended by students drawn from the ranks of middle management within the industry. The policy has been continued of recruiting students from as many fields of management as possible, in order that students themselves may, as a result of discussion and interchange of views, broaden considerably their outlook on managerial problems.

It will be seen, therefore, that the gas industry is in the forefront of those industries vitally and continuously concerned with the further education and training of their employees.

These are but the bare bones of the many complex and detailed deliberations which have taken place in this vital field, and which have generally been conducted in a cordial and co-operative atmosphere.

Gas Members Gave Unanimous Expression of Confidence

THE year began with a unanimous expression of confidence by NALGO's gas members in the Association's machinery to deal with their special needs and interests, writes Mr. G. W. Phillips, National Organising Officer for Gas Staffs in the National and Local Government Officers' Association (NALGO). This machinery consists of a gas service conditions sub-committee in each of NALGO's 12 districts, co-ordinated by a national gas service conditions sub-committee.

These sub-committees make recommendations, through NALGO's representatives, to the staff sides of the area joint councils and the National Joint Council respectively. The national sub-committee also helps to shape NALGO's general policies through representations to the Association's full service conditions committee and national executive council.

A survey made at the end of 1956 showed that gas branches and members continued to find these arrangements satisfactory, and were making full use of them—a fact which may account for the Association's steadily-mounting membership in the gas industry.

Events in 1957 proved again how useful this machinery would be. Once again, redundancy and the threat of redundancy were a major preoccupation. More than one area board, in introducing admittedly overdue schemes of reorganisation, did so without full advance consultation with employees' representatives, and some serious problems resulted. More than once, NALGO has had to re-affirm its own policy in this matter.

It recognises that the well-being of its gas members depends on the prosperity of the industry they serve, and it is always ready to co-operate fully in measures to step up efficiency. But, with equal conviction, it asserts that efficiency itself is undermined if employees go in constant fear that to-morrow, or next week, or next month may bring the end of a career in the industry. It believes that with careful planning ahead, the adverse effects of reorganisation on staffs can usually be absorbed by normal wastage and earlier retirement.

NALGO

Where this is not possible, it recommends that the principle of 'last in, first out' should govern all dismissals. Happily, in several areas, this policy has been put into effect, largely as a result of full joint consultation on the matter.

That this should be so has strengthened NALGO's firm belief in the value of joint consultation in all fields of public service. This year, its gas service conditions sub-committee has conducted a useful inquiry into the working of the joint consultative committees in the gas industry. As might be expected, this revealed a wide diversity of practice.

In some areas, joint consultation is being operated fully and enthusiastically by both management and staffs; in others, through the fault of either side or both, it is languishing. As a result of the survey, NALGO was able to put forward proposals for improving the system, and it will continue to encourage its members to make wide and responsible use of it.

Earlier in the year, NALGO, together with other trade unions concerned, gained a notable victory by ensuring that pensions increase should apply not only to ex-municipal but also to ex-company employees. Now the unions are working together on another matter affecting the Ministry—plans for a new compensation agreement to replace the Gas (Staff Compensation) Regulations, 1949, which expire on April 30, 1959. Proposals framed by a joint compensation committee representing senior gas officers and national joint council staffs have already been the subject of an approach to the Minister.

NALGO has also given full support during the year to the progressive elimination of the provincial 'B' scales and the extension of staff status to intermediate grades; and to moves towards a five-day working week, already operating in some boards, not necessarily as a simple Monday-to-Friday arrangement.

Loyalty and Efficiency

The future of the gas industry depends on loyal and efficient staffs. To recruit and retain such staffs in competition with other industries, gas must offer good conditions of service, the assurance of continuing employment, reasonable provisions on retirement—and, of course, a salaries structure giving adequate pay here and now and incentives for the future.

During 1957 both senior gas officers and national joint council staffs have had welcome salary increases. But these still failed to meet the long-outstanding need to restore differentials and so provide incentives and rewards for increased responsibility. NALGO and the other unions on the staff side of the National Joint Council submitted in October a claim which would achieve this.

At present, the factual basis of this claim is under investigation. It must be hoped that, before 1958 is far advanced, the matter will have been satisfactorily decided—to the lasting benefit of the industry as whole and of the staffs which contributed so much to its success in 1957.

NALGO sends greetings to all gas officers, staff, and other readers of the 'GAS JOURNAL' for a happy and prosperous new year.

The Need for National Fuel Policy is Reiterated

B.G.S.A.

MR. F. C. HENFREY-SMITH, General Secretary, writes: The British Gas Staff Association, catering as it does for the staff of one industry, is concerned not only with its primary purpose of maintaining and improving the conditions of service of its members, but also with the future prosperity of the gas industry itself.

At its annual conference, therefore, views are expressed on a wide variety of matters but all related to the gas industry. At the 1957 conference, the need for a national fuel policy was reiterated, a policy so designed that each form of fuel will be used for the purpose for which it is best suited. The B.G.S.A. would not desire consumers to be denied freedom of choice, but urges widespread information on fuel efficiencies, and price policies of each fuel which would reflect the actual cost of the service provided. The annual conference has frequently expressed concern at the increasing reliance on oil, especially by the gas industry, and has urged all possible efforts to increase coal output and encouragement to British industry to use coal, produced in this country, in the most scientific and efficient manner.

Cheaper Therm

The recent comments by the Minister of Power and by Members of Parliament on the need to produce a cheaper therm from non-coking small coal, and the research already being undertaken by the Gas Council are in line with the views expressed by the Association.

Meantime, however, the gas industry will face grave difficulties, for it will be useless to be able to produce cheaper gas in the future if the industry loses its markets in the intervening years.

Unfair Application

The Association, therefore, considers that it is utterly unwarranted that the sales of gas space and water heating appliances should be so restricted by the unfair application of a high rate of purchase tax. It has made strong representations to the Chancellor of the Exchequer on this matter.

The Association and its members wish to play their part in extending the use of gas as the country moves towards clean air and higher standards of living. It therefore endeavours to foster joint consultation and looks forward to the time when there will be 'co-determination' in the industry, a method of management which has to a great extent led to the 'West German miracle.'

The B.G.S.A. has continued to increase in membership. It plays a leading part on the national and all area joint councils for gas staffs and it has a active section of senior officers. Its salary policy is to endeavour to ensure that the living standards of its members are, at all levels, maintained in relation to the cost of living. It has therefore urged that all general salary increases should be on a percentage basis and in this aim a measure of success was achieved when a general increase was granted in May, 1957. It states that salaries paid in the gas industry should compare favourably with those in other similar services. The B.G.S.A. is therefore a party to a claim for a review of differentials, now under discussion at national level.

Finally the B.G.S.A. believes that the industry must re-consider its attitude to selling. Sales forces generally are too small and the policy is too conservative. We believe that, given the incentive to good salaries, the backing of quick delivery and fixing and the provision of attractive tariffs, the salesmen could, even against intense competition, recover lost custom and increase greatly the sale of gas. Let there be no talk of redundancy, but may the industry in 1958 tackle wholeheartedly the urgent need to train more salesmen to go out for more business. We should not be satisfied until every domestic coal fire has been replaced by a gas or coke fire and until a continuous supply of hot water is regarded as a necessity in every home.

Loss of Dr. Foxwell: No Interruption in Activities

Gas Officers Guild

THE death of Dr. G. E. Foxwell in the spring of an eventful year deprived the Gas Officers Guild of its Secretary and occasioned personal loss to all of its members, for he had rendered outstanding service, generally and individually, since its early days. Nevertheless, the work of the Guild was continued without interruption, under the direction of the Executive Chairman, and its headquarters were moved in the autumn from Ashtead to London, and the necessary re-organisation and re-equipment introduced.

At the well-attended general meetings of the Guild in May and November the members unanimously approved alterations to the Rules, the principal purpose being to simplify and clarify the qualifications for membership and to increase the rates of subscription and vary the basis upon which they are assessed. The service to members was extended by the introduction of members' memoranda circulated between issues of the Bulletin, thus expediting the dissemination of information.

In a body to which, apart from staffs, the majority of officers belong, cessers due to deaths and resignations on retirement are inevitably numerous. But the influx of new members more than offset the losses. Support continued to be given by members to the two insurance schemes of the Guild. One secures for members, their wives and children substantial payments to offset the cost of surgical, nursing and hospital fees and the other provides a capital sum for the members and their wives who suffer death or total disablement as a result of accidental bodily injury.

Salary Group

The implementation of the National Salaries Table was required to be completed by the commencement of the year under review, one of the objects being to place each officer in a salary group under the table which reflected his salary as at March 31, 1956, so that his position and minimum annual increments should be precisely defined. Members who were not satisfied that this had been equitably done, or who considered that their salary was inadequate in any event, endeavoured during the

year to negotiate improvement with their area boards. Failing this, the Guild may appeal on their behalf to local tribunals established by the Senior Gas Officers' Joint Council and, if settlement does not thus emerge, to the central tribunal.

The exercise required to be made by the introduction of the table appears to have proceeded smoothly enough in areas or cases where salaries were reasonably adequate by existing standards, and the grouping had not been accompanied by endeavours to eliminate or modify such additions or emoluments, by merging them into the salary group assigned by the Board to the individual officer.

In March the Guild issued a salaries questionnaire to all members with the object of ascertaining the manner in which the boards had applied the table, of assessing the adequacy of individual grouping and of securing an overall picture of salary levels. The detailed replies were tabulated and reviewed and the information secured was made available to the branches of the Guild (without disclosing names or boards) to assist in dealing with negotiations and appeals arising from an officer's dissatisfaction with his grouping or the adequacy of his salary.

General Level Low

Salaries under the 1956 table were increased from July last by virtue of agreement reached by the Senior Gas Officers' Joint Council on a claim made by the officers' side. This represented increases varying from £50 to £100 per annum. The staffs salary scales had earlier been increased by amounts ranging from £10 to £45 and from £25 to £30 for intermediate grades. The general level of salaries, however, remains low compared with those of officers and staffs in other industries and services. The implementation of the Government's policy of restraining wage increases creates considerable difficulty when dealing with a salary structure already below standard, but it is encouraging that the situation has been remedied by the Minister in respect of persons appointed by him.

Timely Consultation

Redundancy arising from nationalisation, or from integration, reorganisation or the introduction of new methods, continued to demand attention by the Council and Branches of the Guild, which sought improvement in the procedure for timely consultation between area boards and the Guild where redundancy was envisaged. Further, it was urged that machinery should be established to facilitate, by inter-board co-operation, the transfer of officers and staff made redundant by a board to other boards having vacancies acceptable to those concerned.

As to compensation payable in the event of redundancy arising from nationalisation, the Compensation Regulations made under the Gas Act, 1948, provide that there is no entitlement to compensation for anything occurring after April 30, 1959. In view of the fact that changes will not have been completed by that date, representations were made for the extension of the Regulations for a further period, but—since redundancy may arise and to increasing extent from other causes—negotiations were begun to secure a joint agreement providing for compensation for the loss of employment, or the diminution of emoluments, which could not be attributed to nationalisation and did not, therefore, come within the ambit of the Regulations. Conclusions have not yet been reached in these matters.

The Guild continued to clarify the complex provisions of the Gas Pension Schemes of the Gas Council and the area boards, while many pension enquiries from members seeking advice were dealt with and, where necessary, their rights negotiated. As a result of representations made, the Minister of Power reversed his decision to exclude ex-company employees from pension increases awarded to ex-municipal employees and the Additions to Pension Schemes of the Gas Council which resulted largely removed an unjustifiable anomaly.

Most Important Event of Year, American Bar Association Visit

Legal

ON the legal side, the most important occurrence of the past year —indeed, of these many years past— was the visit in July of the American Bar Association, when the public utilities section of that Association was welcomed at a cocktail party at Murdoch House. This was followed next day by a meeting of the whole group at the Charing Cross Hotel when papers were given by the legal advisers of Britain's nationalised gas, electricity, and transport industries; the party was than entertained to lunch by the nationalised industries. During these functions, and at a party which the visitors later gave in return, many valuable contacts were made.

Trade Practices

A consideration of the year's legal activities must, if it is not to become too lengthy, be restricted to Gas Council level. It is not overlooked, however, that the work of the legal officers of the area boards is of equal importance. Failure to include mention of this is due to considerations of space only.

In the early part of the year, the Restrictive Trade Practices Act dominated the legal scene, involving some 300 to 400 agreements in respect of the marketing of residuals and appliances. Meetings were organised with the Northern, Midland, and Southern Boards to decide which agreements needed further consideration. A further meeting involving all Boards followed as a result of which a number of agreements were registered and will presumably come before the Restrictive Trade Practices Court in due course, although the Court has not yet heard its first case.

Matters of great importance have arisen in connection with effluent disposal. This is one of the industry's greatest problems, and a major factor in the siting of a new gasworks.

The Government have asked the Central Advisory Water Committee to consider the provision of the Rivers (Prevention of Pollution) Act of 1951 providing that no prosecution for the pollution of fresh water shall take place within seven years of the passing of the Act without Ministerial approval. The Gas Council gave evidence in support of an extension of the period.

Liquor Effluent

The same Committee has also been asked to examine existing legislation and the operation of the common law respecting the disposal from trade premises of liquor effluent. A memorandum has been submitted by the Gas Council to the Committee in which it is suggested that paragraph 32 of the Third Schedule of the Gas Act, 1948, which prohibits the discharge into inland waters of any waste product or other substance produced in making or supplying gas, should be repealed in order to enable advantage to be taken of any by-laws

Mr. Michael Milne-Watson (extreme left), and Mrs. Milne-Watson (centre) chat with Mr. H. Royston Askew, Q.C. (extreme right) and Mrs. Askew, and Mr. Charles Francis, of Texas, at the cocktail party at which the public utilities section of the American Bar Association was welcomed at Murdoch House.

made by the River Board concerned.

Consideration of regulations made in connection with the Clean Air Act has occupied considerable time. Evidence was given before an enquiry set up by the Government on whether any industries and, if so, what industries should be subject to local authorities or to the Chief Alkali Inspector in regard to smoke.

Subsidence

There has been considerable negotiation with the Ministry regarding the Coal Mining (Subsidence) Act, 1957 under which Gas Boards would be entitled to claim against the National Coal Board in respect of any damage incurred as a result of mining subsidence.

Careful consideration has been given to the new Electricity Act, which introduces for the electricity industry a new organisation somewhat similar to that of the gas industry. The Act establishes an Electricity Council whose duties and powers are similar to those of the Gas Council. The various provisions of the Act have been carefully compared with the corresponding provisions of the Gas Act.

During the year there have been negotiations on various matters with the Post Office. These negotiations covered the creation of large manholes obstructing the footway and the use of polythene cables of a colour difficult to detect.

The gas industry was also represented when the British Transport Commission applied to the Transport Tribunal for increased charges.

The legal department has also been occupied with a number of Private Bills. The Manchester Corporation Bill would have enabled Manchester Corporation to override agreements regarding the discharge of effluents into sewers. The North Western Board obtained protection in connection with this Bill, the right which it granted to the Corporation being limited, and the provision made that no agreement should be altered within three years of its being concluded.

Protection was also obtained by the Wales Gas Board in respect of cathodic protection of its mains which might be impaired as a result of the right conferred by the British Petroleum Act on the B.P. Company to break open streets and lay mains in connection with Milford Haven refinery.

Preservation of protective provisions formerly enjoyed was secured in connection with rights granted to the British Transport Commission in respect to the district heating of certain Greenwich premises as a result of the British Transport Commission Act.

The ever present and difficult problem of the insertion of counterfeit coins in gas meters was the subject of a meeting during the year with the Treasury Solicitor, the Director of Prosecutions, and the Deputy Master of the Mint. Negotiations have also continued throughout the year with the highway authorities relative to the reinstatement of trenches which have been broken open. An agreement was secured.

Co-operation

These are some of the major matters in which the Gas Council legal department has acted in co-operation with the area board solicitors. They are matters concerning the industry as a whole, and, as already mentioned, leave unrecorded much that has been done by the board solicitors on their own account in connection with their local problems. Throughout the year they have continued their bi-monthly meetings when the experience which each area board has accumulated is made available to the industry as a whole.

117,000 SCOTS ELDERLY AND INFIRM VISITED

SCOTTISH Gas Board inspectors visited 117,454 homes of elderly and infirm consumers between June, 1956, and September, 1957, a recent Gas Consultative Council Meeting in Edinburgh was told. A considerable number of defects were found, including 100,000 taps which required adjustment and 80,000 appliances requiring regulation.

It was reported to the meeting that the Scottish Gas Board had recently approved major projects totalling £161,002. These included provision of £25,350 for the conversion of the sulphate of ammonia plant at the Ptovan chemical works in the Glasgow area to a gas liquor concentration plant; and in the Aberdeen and North area £15,543 for the provision of trunk mains to United Kingdom Atomic Energy Authority staff housing project, near Thurso.

The rebuilding of 'B' bench of continuous vertical retorts at Dundee is to cost £48,323.

SOME OF THE GAS INDUSTRY'S PERSONALITIES OF THE YEAR

SIR HAROLD SMITH was re-appointed Chairman of the Gas Council when his present term of office expires, December 31. During the year he was also installed as the first Honorary President of the newly-formed Houldsworth Society at Leeds University. Another feature of the Chairman's year was his celebration with Lady Smith of their ruby wedding anniversary.

Other interesting items which appeared on our 'Personal' page during 1957 were:—

MR. L. C. HANSEN, M.B.E., a part-time Member of the North Thames Gas Board since vesting day, retired. In succession was appointed ALDERMAN W. D. GOSS, O.B.E.

MR. G. J. B. COX was appointed Deputy General Manager by the Scottish Gas Board. Other appointments were: MR. A. MACPHERSON, Accountant and Administrative Officer; MR. T. SMITH, Service and Sales Manager; MR. K. F. CAIRNS, Distributing Engineer; MR. F. B. COOPER, Stores, Purchasing and Transport Officer; MR. B. PRESTON, Personnel, Welfare, and Training Officer.

MR. C. J. B. SAWBRIDGE was appointed Chief Accountant of the South Eastern Gas Board in succession to the late Mr. C. Stredwick.

LT.-COL. J. A. GOULD, M.C., retired at his own request from the post of Distributing Engineer to the South Eastern Gas Board, two years before his official retiring date.

MR. A. IFAN JONES, M.B.E., retired on April 1 after 61 years in the gas industry. Mr. Jones, who started work as a fitters' apprentice in 1896, was appointed Chairman of the Anglesey Group of the Wales Gas Board in 1949, and later also made Chairman of the Caernarvonshire Group.

MR. HECTOR MCNEIL, at the July meeting of the Council of the Institute of Fuel, was elected to succeed Mr. J. R. RYLANDS as President in October.

MAJOR W. R. BROWN, D.S.O., was appointed Chairman and Managing Director, in succession to the late DR. N. E. RAMBUSH, of the Power-Gas Corporation of Stockton-on-Tees.

MR. J. C. INGRAM, Secretary of the West Midlands Gas Board, left the gas industry to take up in May an appointment in London with a firm of management consultants.

MR. S. A. KING, Area Commercial Manager, resigned from the Eastern Gas Board to join R. & A. Main, Ltd., of London and Falkirk, as General Sales Manager.

ALDERMAN F. G. EXTON was appointed Deputy Chairman of the North Thames Gas Consultative Council in succession to MRS. ALICE TOPPING; ALDERMAN W. W. FARTHING was appointed Deputy Chairman of the Eastern Gas Consultative Council in succession to Mr. C. H. FREWER; and MRS. HANNAH HARRY was appointed Deputy Chairman of the Wales Gas Consultative Council.

MRS. G. EVERSHED was elected Chairman of the Women's Gas Federation on the completion of MRS. G. ABBOTT'S two years' term of office.

MR. JOHN SWAN was appointed Secretary to the West Midlands Gas Board in succession to MR. J. C. INGRAM.

MR. G. M. BEHR, Home Sales Manager of Ascot Gas Water Heaters, Ltd., was appointed General Sales Manager responsible for the maintenance and enlargement of all export markets and for the co-ordination of sales promotion in both the home and overseas markets.

MR. R. B. REYNOLDS, and MR. H. E. ROBINSON were appointed Directors of George Wilson Gas Meters, Ltd.

MR. G. W. EMRYS-ROBERTS accepted the appointment of Sales Manager of Parkinson & Cowan Gas Meters.

MR. CYRIL H. PEARSON, Director of Parkinson & Cowan, Ltd., was appointed Parent Company Director in charge of Parkinson & Cowan Gas Meters, Parkinson & Cowan Industrial Products, and Parkinson & Cowan Group Exports. He relinquished his appointment as General Manager of these Divisions.

Mr. Francis George Brewer, Secretary of the Gas Council, who was awarded the O.B.E. in the New Year Honours.

Mr. John Horsfall Dyde, Deputy Chairman of the Eastern Gas Board, who was awarded the O.B.E. in the Birthday Honours list, is seen outside Buckingham Palace after his investiture with his wife and elder son, John, who is a student at Guy's Hospital.

The Year's Obituary

DR. GEOFFREY EDWIN FOXWELL, C.B.E., a founder and a President of the Institute of Fuel, and Editor of *Coke and Gas*, died aged 65.

MR. CHARLES F. BOTLEY, who was President of the Institution of Gas Engineers in 1926, died aged 87.

DR. N. E. RAMBUSH, Chairman and Managing Director of the Power-Gas Corporation, Ltd., Stockton-on-Tees, has died, aged 68.

LIEUT.-COLONEL JOHN KENNINGTON, D.S.O., M.C., died in March. Prior to nationalisation, he was Engineer and Manager of the Great Grimsby Gas Company, and from 1949 until his retirement in 1951, Manager of the former North Lincolnshire Sub-Division of the East Midlands Gas Board. He was President of the Eastern Counties Gas Engineers and Managers' Association in 1941.

Inaugurations and Launchings —1957

Top of page: *In the autumn the Cumberland gas grid was opened at Carlisle. At the ceremony Sir Robert Chance, Lord Lieutenant of Cumberland, is seen tightening the last nut. On his left is Sir Harold Smith, Chairman of the Gas Council, and Mr. E. Crowther and Mr. J. E. White, Chairman and Deputy Chairman, Northern Gas Board.*

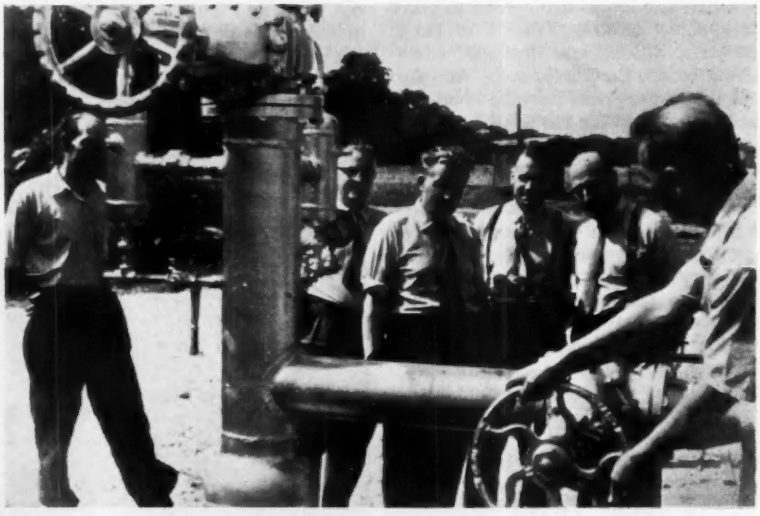
Above: *Lord Mayor of Stoke-on-Trent, the Reverend A. Perry, opens the valve admitting methane from Wolstanton colliery into the gas supply of the Etruria works. Watching the Lord Mayor are, on the right, Mr. G. le B. Diamond, Chairman of the W.M.G.B. and Mr. E. H. Browne, Chairman of the West Midlands Division of the N.C.B.*

Left: *Alderman John Lewis, Chairman of the W.M.G.C.C., unveils a plaque at the inauguration of a new C.W.G. plant at Nechells works, Birmingham, in October.*

Below: *Sir Harold Smith unveiling the plaque commemorating the opening of the new Litchurch works of the East Midlands Gas Board this summer. With him, left to right, are the Mayor of Derby; Mr. R. S. Johnson, M.B.E., Chairman, and Mr. E. H. Harman, Deputy Chairman, East Midlands Gas Board.*

Above: *Natural gas from a well at Cousland is now flowing mixed with coal gas. Sir Harold Smith opened the well-head valve late this year.*

Top Right: *The launching of the South Eastern Gas Board's new collier, m.v. 'Dulwich,' from Aberdeen in the summer. Centre of the group is Mr. W. K. Hutchison, Chairman of the Board. Extreme right is Captain John Dry, Master Designate.*



Opposite: *Pictured when the valve was turned on at the link-up of the refining pipe from Fawley refinery of the Esso Petroleum Co., Ltd., with the Southampton works of the Southern Gas Board, are Mr. G. Neil, Regional Production Engineer, fourth from the left; Mr. R. K. Harrison, Regional Distribution Engineer, third from the left; and Mr. W. F. Thorne, Chief Chemist, Southern Gas Board, second from the right.*

Below: *Another S.E.G.B. launching ceremony, this time in the autumn, was when the m. v. 'Southwark' was seen off by a party including those in this picture. It is the Board's newest and largest collier. In uniform is Captain S. B. Smith,* M.B.E., *Commodore Captain of the Board's fleet and Master Designate of the 'Southwark.'*

Highlight of the Year was the Nation-wide Co-ordinated Press Campaign

NOTHING sways people quite as effectively as a nation-wide campaign of propaganda that is simple and straightforward yet packs a punch. This fact has been exploited during the year in Gas Council's 'new look' publicity. It has got results. It will be developed further in 1958.

Undoubtedly the highlight of a very active year for the Gas Council publicity department has been the co-ordinated advertising campaigns in the national Press—space heating from mid-September to mid-October and cooking in November and December, to be followed next March by water heating, and later in the year, by similar campaigns on the same loads and on home laundry and refrigeration. A long-term campaign on central heating is also planned.

The campaign is particularly significant in that for the first time since nationalisation the whole industry—Gas Council and all 12 area boards—speaks to the nation with a single voice. Uniform slogans are used; ten selected appliances are agreed in each campaign, covering the five basic domestic loads, and brought effectively before the public eye. And for the first time, prices have been unified and are quoted for the whole country.

Big Advance

This marks a big advance, for it is a general axiom in advertising that the greater the weight of the campaign, the greater the results. And while each Gas Council sponsored nation-wide campaign lasts for two-three weeks, individual boards, which prolong each of the series locally, continue to benefit from the initial impetus.

The Gas Council further aids individual board sales work by providing appropriate posters and window strips for showrooms throughout the country—and on the subject of the distribution of publicity material, 1.5 mill. items of Gas Council literature have reached the public via the area boards during the year!

Turning from the national Press, Mr. Therm appears in 70 trade and technical journals—ever more prominently because more and more use is being made of cover positions using colour, or well selected inside pages.

The aim is to register Mr. Therm in the reader's mind with speed and punch, and some 600 prominent positions—mainly front cover—have been taken during the year. Indeed, certain journals have modified their format to give the Gas Council the position demanded.

These 'new look' advertisements are cleverly overprinted with 'Mr. Therm's library list' on which names of a firm's executives who must see the advertisement may be inserted—an excellent device for ensuring that

Publicity

Mr. Therm catches the eye of the people who matter.

All this might have been expected to involve the expenditure of more money. But by careful planning and reallocation, increased benefits have been won during the last year without increased outlay. The emphasis has shifted to selective advertising.

Turning to other spheres, the Gas Council publicity department sees a big future in the recently launched, cheapest-ever Gascold refrigerator manufactured by Astral Equipment, Ltd., a Morphy-Richards subsidiary.

Supplies are already reaching the area boards, and the publicity department has prepared 341,000 leaflets for a national publicity campaign next May; posters and showcards have also been produced. The industry has ordered 25,000 models of this refrigerator for delivery over the next two years.

Outside Activity

The department has been engaged in much activity with outside organisations, as, for example, when Mr. Therm took over the Tea Centre for three successful months. During this time a marked degree of co-operation was seen with such bodies as the White Fish Authority, the Milk Marketing Board, and the Mushroom Growers' Association.

There was intense activity, too, at the Building Centre, visited not long ago by the Duke of Edinburgh; and it has been a record year for gas displays at exhibitions, and for the showing of Gas Council films both at home and abroad. Much interest is being shown by youth organisations and the public in the 'Youth in the Kitchen' cookery competition, the finals of which take place in May.

Turning to publications, a good reception was given by the industry generally to Charles C. Knights' 'Sales Training Manual,' 10,000 copies of which together with the key, have been distributed to area boards. Other important publications include

Royal Interest—The Queen is seen chatting with Mr. F. G. Brewer, C.B.E., Secretary of the Gas Council, when she inspected the Gas Council Pavilion during her visit to this year's Ideal Home Exhibition.

Three differing examples of gas publicity during the year. Above, in the agricultural exhibition field, is seen a general view of the N.E.G.B. stand at the Great Yorkshire Show. Below, left, outstanding among displays at this more general type of show is the 'double-deck' Gas Council stand at the Building Exhibition. Right, illustrating talent in the 'novelty' field, is a café scene in the N.W.G.B. Newcastle showroom during 'French Week.'

★

'Clean Hands Mean Clean Food' and broadsheets on the use of gas and coke in carrying out the provisions of the Clean Air Act.

An outside publication in which Gas Council publicity is quietly and effectively at work is the 'British Trade Alphabet.' This highly exclusive booklet produced by Educational Productions Ltd., consists basically of one full-page descriptive advertisement under each letter of the alphabet (gas appears under 'Flame' as the letter 'G' was already in use and could not be obtained).

It is distributed free to schools—1.1 mill. copies of it—where the children, using the information contained in the advertisements, write essays and projects, for the best of which they and their schools receive prizes. This is a splendid way of introducing the young to Mr. Therm.

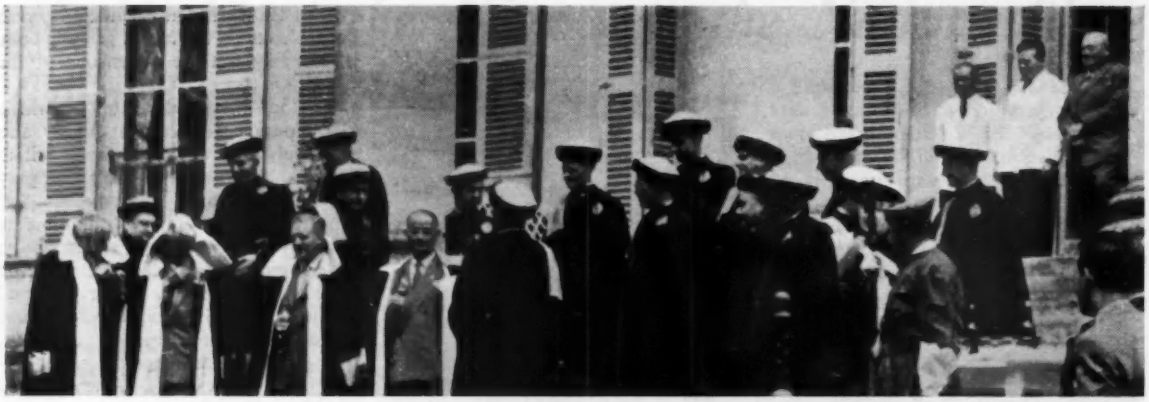
Sales and Service Conference

A review of the Gas Council publicity department's activities for the year would not be complete without at least a passing reference to the Sales and Service Conference. The department has no hesitation in saying that it was the best ever.

To sum up, 1957 has been a most active year on the Gas Council advertising and publicity front. It has produced more variety; it has seen life become more complex; it has ushered in a more hard hitting approach. And that is the future trend—with more and more co-ordination with area boards. And ever greater responsibility for the department.

Indeed, but for the Suez crisis, there would already have been substantially more progress in this direction. It must be hoped that the future holds no further setbacks of this kind—without them the outlook spells success.

As a footnote, an interesting fact has emerged from the year's publicity activities: The convector heater has taken the lead. The public is clearly 'sold' on its advantages.



EVENTS THE CAMERA CAPTURED

Above: *The Compagnons du Bontemps de Médoc at the Château Margaux. Dr. J. Burns, President of the Institution of Gas Engineers, who was among visitors installed as honorary Commandeurs, is seen fifth from the left.*

Left: *The Duke of Edinburgh with the Chairman of the Wales Gas Board, Mr. T. Mervyn Jones, at the inauguration of the North Wales gas grid in November.*

Below: *Scottish Board's first staff conference at Perth. Lord Provost J. Buchan points out a local landmark for the benefit of Sir Harold Smith, Sir Henry Jones, Mr. Sydney Smith, and members of the Board.*

Foot of page: *The Eastern Gas Board team, winners of the men's first aid Challenge Trophy, after the presentation. With them were Sir Henry Jones, Deputy Chairman, Gas Council, Mr. J. H. Dyde, Deputy Chairman, Eastern Board and Mr. T. C. Battersby, General Manager, Watford Division. Next to the Captain is Nurse Bateman, who coached the team. Members of the team are: D. Williams (Captain), R. F. Carter, D. J. Whitehead, E. C. Martin and J. W. Nicholson (reserve).*

Competition and Collaboration are the Operative Words

Industrial

PARADOXICALLY, although a new effort is needed to fight competition, collaboration towards the ideal of 'the right fuel at the right price' is on the increase.

An instance is the development of gas/oil burners. A little early yet to look for practical examples, nevertheless there is no doubt that these burners will contribute greatly towards the flexibility of certain operations, particularly heat treatment, ultimately benefiting immensely those industries where this quality is of vital importance.

In certain stages of some processes gas can supplement oil for the heating up operation, for maintenance rates, and where general flexibility is needed.

Burning Question

Which brings us right on to the burning question this time last year: You remember we asked just what effect the Suez upheaval was likely to have on the gas industry? It certainly seemed to be an opportunity with a capital O for gas to assert its comparative invulnerability to the slings and arrows of outrageous politicians, and in fact to break a lot of new ground.

Well, there certainly was a rush of requests for gas to supplement the oil that industrialists feared they would no longer get. And among these enquirers were a few erstwhile customers of ours who wanted to come back—this time with long-term contracts.

While the latter were welcomed without reservation a certain amount of caution had to be exercised with people whose stay with us clearly promised to be no longer than it takes, shall we say, to re-float a sunken dredger in the Suez Canal. To please them entirely might have meant a little hardship for our 'regulars' who, as everybody knows, look upon the continuity of gas with complete confidence.

Not that anybody regards the competitive situation with complacence—how could they when, as stated at the Sales and Service conference, the load is 'static'? In the whole of its history this sector of the gas industry has never had that word applied to it before.

Truisms have no place in journalism, but this observation had better be written somewhere: Disseminating information among and collaborating with manufacturers in the design of new equipment has never been more important.

The Industrial Gas Development Committee is naturally acutely aware of this, and sales will be emphasised during the coming year.

But . . . and this is the real problem . . . who is going to do the selling? The growing complexity of processes demands close attention to the design of equipment, and more and more is it evident that personal service to the consumer is the best way of increasing the load.

Staff Shortage

The industry still has difficulty in producing enough qualified staff for this job, and without it how can the load be increased? All the skill and time of industrial gas representatives is needed now for maintaining the gas load against competitors.

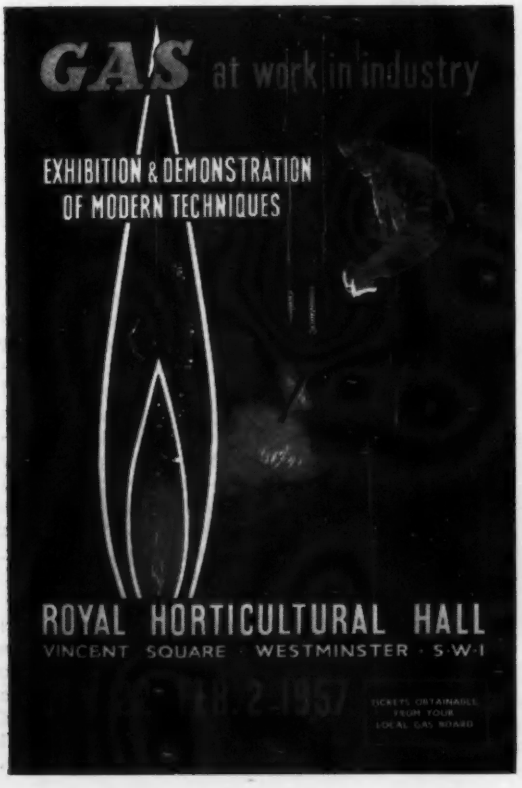
What of technical advance? One notable step forward during the year has been in the design of gas-fired plant to enable scale-free heating to be carried out. It is no longer economical to allow steel components to be heat treated and then cleaned by buffing or other treatment, which is expensive in labour and time. As a result of work involved in the generation of atmospheres it is now possible to heat treat in a scale free condition a wide variety of components including those made of mild steel.

Steadily Growing

A striking example of this steadily growing technique was shown at the Engineering and Marine Exhibition in September, where the Gas Council in co-operation with a manufacturer demonstrated the process on their stand.

The Industrial Gas Development Committee continues to distribute information on a wide variety of subjects and a number of reports are being made available to the Press, research establishments, universities, associations, and private firms . . . the last often in order to use the information in association with their sales literature.

Typical examples of the subjects dealt with in reports published during


GAS at work in industry
EXHIBITION & DEMONSTRATION
OF MODERN TECHNIQUES
ROYAL HORTICULTURAL HALL
VINCENT SQUARE · WESTMINSTER · S.W.1

The Gas at Work in Industry Exhibition (January 22 - February 2) fulfilled the greatest hopes anybody had of it, bringing in substantial orders as well as being of immense prestige and publicity value. It was organised jointly by the North Thames, South Eastern, Eastern, and Southern Gas Boards.

1957 are: Bogie-hearth annealing furnaces; the de-frosting of refrigeration coils; design of water stills and sugar boilers; manufacture of plastic jointing compound; design of a special light-type valve for controlling gas supplies; automatic ignition equipment; appliance design of many kinds; metal-melting furnaces; accumulator separator plates; and the drying of heavy chemicals.

Explosion Reliefs

The work of the panels of the Industrial Gas Development Committee is constantly under review. Collaboration between the Committee and manufacturers is demonstrated in the presentation of the second report on explosion reliefs to the Autumn Research Meeting of the I.G.E. Here, all the information resulting from work carried out by the Midland Research Station has been put into immediate application on production jobs. The stultifying effect of delay between research results and production practice is too well known to have to draw comparisons here.

Jet Burner Design

Another demonstration of the value of concentrated effort by a research team into subjects of interest to industrial gas is the publication by the Midlands Research Station of the work on jet burner design.

Jet, or any other burners employing forced air, play a large part in supplying heat for industrial processes. Until recently, however, most of the burners available were developed as a result of practical experience.

Fundamental investigation has shown possibilities of considerable improvement in the performance of burners, which must have a substantial impact on design of equipment in future. The devotion of energy and skill to the production of appliances or equipment based on this work could mean that 1958 will prove to be a significant stage in the development of industrial gas applications.

Meticulous Attention

Finally, exhibitions. The Gas Council must be realistic in its expenditure on exhibitions and has tended to limit the number supported during 1957 But the approach at those still used has been unchanged: Meticulous attention to detail and the presentation of gas at its best.

There's a Silver Lining . . .

Excess Stocks are Not Cause for Concern

At the launching of the Gas Council's new Coke-Burning Appliances Handbook, Sir Harold Smith, Chairman of the Gas Council (Centre) with (Right) Sir Henry Jones, Deputy Chairman, show Mr. David Renton, Parliamentary Secretary, Ministry of Power, and Mr. H. V. Shelton, Chairman, British Ironfounders' Association, one of the latest coke-burning stoves.

Coke

SOME 30 years ago, A. S. M. Hutchinson's 'If Winter Comes' had the whole country laughing. Last year the winter never did come. And, for the gas coke industry at any rate, that was no laughing matter at all. As a result a black cloud hangs over the industry today—indeed, it hangs over all solid fuel industries. For the industry is now holding heavy excess stocks of coke.

Ten years ago, this situation might well have had the industry seriously worried. But today, nationalisation has brought sanity to coke marketing. And these heavy excess stocks are held with equanimity. Indeed, the black cloud has a silver lining.

No Fear

For not only is there no fear of the industry being stampeded into cutting prices below economic levels and selling at a loss as could have happened in the past, but these excess stocks provide insurance against the realisation of forecasts by those who oppose clean air that in time of peak demand there will not be enough smokeless fuel to go round—a state of affairs the gas industry is determined to prevent.

Build-up Factor

The present excess stocks of gas coke accumulated despite two events in the trade year which might have been expected to step up sales—the passing of the Clean Air Act and restrictions on the use of fuel oil following the Suez crisis (it is interest-

ing to note, indeed, that the latter factor had the reverse effect as carburetted water gas production was slashed involving a saving of 150,000 tons of gas oil and an increase of 600,000 tons in stocks of coke). The overall excess stocks built up also despite record oversea demand for coke which was the highest since the war. Another factor in the build-up was deliberate stockpiling with Government approval to meet demands expected to arise from the Clean Air Act and Suez.

Abnormal Weather

As a result of these factors, stocks of coke at gasworks rose from 1 mill. tons at the end of June, 1956, to 2 mill. tons by the winter. And though trade became normal in the last quarter of that year, in the first quarter of 1957, it fell to one-third of the normal level.

Just how abnormal last winter's weather was may be judged from a consideration of the relative degree days. During the past 30 years, the average for the period December-March has been 2,353. Between 1950 and last winter, it never fell below 2,378. Last winter for this period, it plunged to 1,986! The average temperature from January to March, 1957, was 6°F. warmer per day than in the corresponding period the year before, which was itself a relatively mild winter!

The present position is that stocks are beginning to diminish—but later than expected because, once again, the winter was slow in coming.

Prices Scheme

This year, for the first time, the summer coke prices scheme was tried in an endeavour to encourage users to build up stocks and lighten the load on men and machines during the winter frost and snow. It is too early yet to assess the results, but the indications are that the scheme will be continued next year.

The export trade continues to be healthy and operates on a sound price policy so that neither home nor export business subsidises the other. Exports of coke are competing satisfactorily with the fuel oil industry, particularly in Scandinavia.

Smokeless Fuels

On the technical side, the industry is now producing increasing quantities of Cleanglow and Phimax. These new smokeless fuels are being literally 'grabbed' by the consumer, who has been quick to appreciate the advantages they offer.

And during the year, following the passing by the Gas Council of British Standard Specifications for coke burning appliances, the fifth edition of the 'Coke-burning Appliances Handbook' has been published, as was reported in the October 9 issue of the 'GAS JOURNAL.'

Curtailed Imports May Lead to Need for Conservation

Coal

FOLLOWING the practice put into operation in the early war years, coal supplies programmes continue to be the means by which the Ministry of Power arranges for the regulation of the coal stocks of big consumers of coal. These programmes continue to serve a useful purpose and ensure that the best use is made of available supplies.

Coal supplies during the year were adequate for the needs of the gas industry but some Boards would have preferred a greater proportion of higher quality coal. Gas coal stocks are substantially below the planned level and some degree of conservation may be necessary now that supplies of imported coal have been greatly curtailed.

Deep Mined

The output of deep mined coal is only slightly better than last year despite the early promise that was shown on this occasion. This means that the gas industry cannot look forward to an abundance of good quality coal in the immediate future.

The steady diminution in the proportion of large coal is a matter for concern to the industry because of the need which it entails to divert increasing quantities of graded coal into markets normally supplied with large coal. This diversion of graded coal tends to limit supplies of suitable qualities for the gas industry at a time when the proportion of small coal and inferior coal is increasing.

The gas industry is thus encountering some difficulty in endeavouring to obtain its full requirements of clean graded coal; and it is unfortunate that coal production in the Yorkshire coal-field, upon which the industry is so largely dependent, is much below expectations. The gas industry will be embarrassed in attempting to fulfil its obligations under the Clean Air Act if it cannot supply coke of satisfactory quality.

In common with other users, the gas industry had to suffer a further increase of 8% in its coal prices last July. In the following month it had to face, in addition, an increase of 10% railway freights and an increase in sea freights.

Difficulties

Matters, however, did not end here. Within the coal price structure, further additions to the price of coal were made on account of type and size, which hit the gas industry harder than its competitors. If the price of coal continues to increase in similar manner, the price margin between coal for the gas industry and coal for its principal competitors might create undesirable difficulties.

It has been said that price discrimination against the better qualities of coal is aimed at conserving resources, and that the low price of inferior coal is an inducement to its greater use. This is not a valid argument if the gas industry is expected to continue to provide a substantial tonnage of clean coke at a price which will discourage the burning of raw coal.

Reliability

It was indicated by the Coal Officer of the Gas Council in a paper on coal supplies presented at the annual meeting last May of the Institution of Gas Engineers that there was no foreseeable shortage of coal suitable for use by the carbonisation industry, assuming that reasonable reliability can be placed on the estimates of coal supply and demand by the major users.

This paper, 'Coal Supplies for the Gas Industry,' disclosed for the first time the precise nature of the coal now being used by the industry, and it was satisfactory to note that in practically all respects a high proportion of the coal received was suitable in terms of type and cleanliness for the production of gas and coke. Furthermore, it was reassuring to be told that for the future there was no reason why such a state of affairs should not be continued.

Section and Association Activities

A BRIEF flashback from our picture library of visits and meetings over the past year of the Sections and Associations:

Top of page: *London and Southern Section, I.G.E. visited the Mobil Oil Company's Coryton refinery for their summer meeting.*

Left (above): *Members of the Eastern Junior Gas Association during a visit to the Essex Works of John Wright & Co., Ltd., Birmingham. The visitors were welcomed by Mr. H. V. Slade, General Manager.*

Left (below): *The Eastern Section of the Institution of Gas Engineers annual general meeting at Skegness—a photograph taken at the reception. Left to right: Mrs. Wardell, Mr. R. C. Wardell, Councillor G. H. Edwards, Mr. J. Hunter-Rioch, Mr. R. S. Johnson, and Mr. Bernard Clarke.*

Foot of page: *Members of the Yorkshire Junior Gas Association who visited the Huddersfield works of Brook Motors Ltd. With the party are Brook Motors' Sales Director, Mr. John Bailey, and Technical Sales Manager, Mr. George H. Brook.*

THE INSTITUTION'S YEAR

Preparations Under Way for Rome Conference of I.G.U. in September

THE Institution has continued throughout the year its professional, educational and technical activities. It has enjoyed the co-operation of the Gas Council, the area boards and the members of the S.B.G.I. Membership continues to grow slowly and now stands at 3,460, an increase of approximately 80 since last year. The loss through death of 21 members is reported with regret.

Members of the Institution included in the New Year and Birthday Honours List for 1957 were: **G.V.C.O., Sir Harold** Hartley, C.B.E., M.C. (Honorary Member); **C.B.E.,** Dr. A. T. Green (Honorary Member), Mr. Sydney Smith (Member); **O.B.E.,** Mr. J. H. Dyde (Past President); **M.B.E.,** Mr. W. B. Claridge (Member), Mr. F. S. Evans (Member), Mr. G. F. Oliver (Member), Mr. G. Walmsley (Member); **B.E.M.,** Mr. J. W. Mills (Associate).

Co-operation with the International Gas Union has been maintained. The Institution is represented on a number of its technical committees to consider specific matters such as standard requirements for the approval or stamping of domestic gas appliances, interchangeability of gases, safety conditions in domestic, commercial and industrial gas installations, multilingual vocabulary, new distribution techniques, and statistics.

Three Papers

Preparations are being made for the 7th International Gas Conference which is to be held in Rome on September 22-25, 1958, and at which three national reports and three individual papers will be presented by or under the ægis of the Institution. The Institution has been represented by the President or another officer at the annual general meetings of several of the overseas Gas Associations.

The seven district sections and the affiliated Irish Gas Association and Scottish Association of Gas Managers have all been active throughout the year, and the accounts that have appeared in the Technical Press of their meetings and activities indicate that a very wide range of interest has been covered.

B.J.G.A. Jubilee

The junior gas associations which, through the British Junior Gas Associations' Joint Council, are affiliated to the Institution, have provided platforms for a number of excellent papers and discussions. The Joint Council celebrated its Jubilee in November, 1957.

The 94th A.G.M. was held at the Institution of Civil Engineers, London, in May, under the Presidency of Sir Henry Jones, M.B.E. In his address Sir Henry reviewed the work of engineers in past days and discussed the future of the gas supply industry, indicating the important part which engineers and scientists will be called upon to play in the further development of the industry. A paper on the pressure gasification of brown coal at Morwell, Australia, was then given by Dr. R. S. Andrews, Chairman and Managing Director, Gas and Fuel Corporation of Victoria. The programme included seven other papers covering a wide range of subjects.

Arrangements were made for technical visits to a number of works, including the Watford and Ponders End works of the Eastern Gas Board, the Wandsworth works of the South Eastern Gas Board, the Aldenham bus overhaul works of London Transport, the Luton works of Electrolux Ltd., and the Fulham and Watson House laboratories of the London Research Station of the Gas Council.

The ladies were entertained to tea by Lady Jones at the Institution's Headquarters, where a display of pottery of contemporary and traditional designs was arranged. The programme included also ladies' visits to the Royal Horticultural Society's Gardens at Wisley and to London Airport.

The President's reception and dance was held in the Great Room at Grosvenor House, and the President's luncheon was held at the Savoy Hotel when the principal guest was Mr. Reginald Maudling, Paymaster-General, who proposed the toast of 'The Institution.' Response to the toast of 'The Guests' was made by Viscount Bruce of Melbourne.

Medal Awards

The Institution Gold Medal for 1956 was awarded to F. J. Dent, R. F. Edge, D. Hebden, F. C. Wood and T. A. Yarwood, for a paper on 'Experiments on the hydrogenation of oils to gaseous hydrocarbons,' read at the 22nd Autumn Research Meeting.

The H. E. Jones London Medal was awarded to C. Stott, M.C., for a paper on 'The post-war development of East Greenwich works,' read at the 93rd A.G.M.

The Institution Silver Medal was awarded to I. J. Hartill for a paper on 'Complete gasification,' read at a meeting of the Manchester and District Section in 1956.

Research Meeting

The Institution Bronze Medal was awarded to W. Lloyd-Ellis for a paper on 'Pipeline butt-weld inspection by ultrasonic methods,' read at a meeting of the Wales and Mon. Juniors in 1956.

The William Dieterichs Memorial Prize was awarded to A. Higgs for a paper called 'Gas is competitive,' read at a meeting of the Midland Juniors.

The 23rd Autumn Research Meeting was held on November 19-20, 1957, at Church House, Westminster, under the Chairmanship of Dr. J. Burns, G.M. The programme opened with the presentation and discussion of the annual reports of the Chairmen's Technical Committee and of the Gas Education Committee of the Institution. The former was presented by Sir Henry

Dr. J. Burns, G.M., President of the Institution for the current year.

Jones, M.B.E., and the latter by Mr. J. H. Dyde, O.B.E.

The President announced the retirement of Mr. J. H. Dyde from Chairmanship of the Gas Education Committee and of the Sales Training Committee, and presented him with an album containing signatures of Council members and of colleagues past and present on the two Committees. Mr. Dyde has served the Institution for a very long period in the field of technical education. Before the war he was a member of the Board of Examiners and also of an *ad hoc* Sub-Committee appointed to consider the revision of the Institution's Examinations. He was appointed Chairman of the Sales Training Committee on its inception in 1945 and succeeded the late Mr. John Terrace as Chairman of the Gas Education Committee in 1950.

Mr. Dyde will be succeeded by Dr. A. E. Haffner, as Chairman of the Gas Education Committee and by Mr. L. F. Randall as Chairman of the Sales Training Committee.

The programme of the first day included also a most interesting paper on Nuclear Power by Dr. J. V. Dunworth, C.B.E., Head of the Reactor Division, Research Group of the United Kingdom Atomic Energy Authority, a brief review by Sir Henry Jones, M.B.E., of the work of the Gas Council's Research Scholars, the presentation and discussion of the 48th report of the Joint Refractories Committee and a research paper on the flaking of refractories.

Research Fellowship

On the second day parallel sessions were held during the morning when, in the Assembly Hall, under the Chairmanship of the President, papers dealing with the production of gas from oil and light petroleum distillates were presented and discussed. The Senior Vice-President, Mr. E. M. Edwards, presided in the Hoare Memorial Hall when papers dealing with utilisation were presented and discussed.

In the afternoon the report of the eighth Arthur Duckham Research Fellowship was presented and discussed and this was followed by papers on stress corrosion cracking in welded gas plant and on a high pressure gas pipeline.

The following awards were made:—

(i) *Charles Hunt Memorial Medals, 1957*

Associate Membership Examination (Gas Engineering Supply)—Robert Evans (Karachi).

Associate Membership Examination (Gas Engineering Manufacture)—Robert Hamblett Raybould, B.A. (Stourbridge).

(ii) *James Archibald Maclay Memorial Prizes, 1957*

Gas Technology (Manufacture)—William Stanley Donaghey (Londonderry).

Gas Technology (Supply)—Ronald William Davies (London).

Gas Salesmanship and Consumer Service—Dennis Jack Frank Osborn (Crawley).

Under the will of the late Dr. A. G. Glasgow, an Honorary Member who died in 1955, the Institution received a bequest of 500 guineas 'in deep appreciation of its high qualities.' The Council decided to devote this bequest primarily to the purchase of text books, particularly American publications, to be available on loan from the library of the Institution. It also arranged a Memorial Lecture in appreciation of the work of Dr. Glasgow. This was given by Mr. F. M. Birks, C.B.E. (Past President) on March 5, 1957.

Secretary of the Institution (right) Mr. W. T. K. Braunholtz, O.B.E., pictured with the Assistant Secretary, Mr. A. G. Higgins, at the Annual General Meeting.

A joint meeting of members of the Coke Oven Managers' Association, the British Coke Research Association, and the Institution of Gas Engineers, was held at the Royal Institution, London, on November 6 under the Chairmanship of Mr. M. D. Edington (President of the Association).

A paper entitled 'A review of the production and utilisation of coke oven gas in Great Britain' was presented by Mr. H. D. Greenwood, Assistant Director-General of Carbonisation, National Coal Board, and was discussed.

The Institution was officially represented at the Congress of the Royal Society of Health held at Folkestone from April 30 to May 3, 1957, and a paper on 'Atmospheric pollution and the demand for smokeless fuels' was presented by Mr. J. D. C. Woodall and discussed.

The technical work of the Institution for the year is summarised in the 18th Report of the Chairmen's Technical Committee. Liaison with various Government Departments and kindred organisations and Institutions has been maintained throughout the year.

Official Visits

Official visits were made by the Institution to the fifth Factory Equipment Exhibition at Earls Court in May, and to the Engineering, Marine, Welding and Nuclear Energy Exhibition at Olympia in September.

The drafting panels of the Codes of Practice Sub-Committee have been considerably strengthened by the appointment of representatives of the Royal Institute of British Architects and the Incorporated Association of Architects and Surveyors. Further, the Royal Incorporation of Architects in Scotland has agreed to receive draft codes and other documents and to submit observations in writing. The closer association with the architectural profession, established by these arrangements, will be of great value to the Institution and, it is hoped, will also be helpful to the architects. Several of the Codes of Practice are now being revised in the light of recent developments, and the revised Code on Gas Service Pipes will be published in the near future.

The Council received with regret the resignation of Lieut.-Colonel J. A. Gould, M.C., as Chairman of the Gas Distribution Committee (formerly Pipes Committee) on his retirement from the industry. Fortunately the Committee will continue to have the benefit of Colonel Gould's expert knowledge and wide experience since he has agreed to continue for the time being to serve as a member of the Committee. Mr. F. L. Atkin (Birmingham) has been appointed to succeed Colonel Gould as Chairman.

Protective Coatings

Discussions have been taking place throughout the year between a small panel of the Committee and the manufacturers of steel pipes and other bodies in regard to the protective coatings of steel pipes. An interim statement on the work to date was published as a supplement to the 18th Report of the Chairman's Technical Committee. Meanwhile, the panel is continuing its investigations and discussions.

Collaboration with the manufacturers of cast iron pipes has been maintained through the Cast Iron Pipes Liaison Committee and a number of matters, including high pressure syphons and the handling of cast iron pipes, are under consideration.

The Cast Iron Pressure Pipe Associa-

tion has published the *Manual of Flexible Joints for Cast Iron Gas Mains* (Socket and Spigot type) which includes the recommendations of the Institution together with full dimensional details and diagrams of the various types of joint and the manufacturer's jointing instructions. The manual costs 2s. 6d.

The Gasworks Effluent Committee has maintained liaison with the committees of the Gas Council concerned with legal and commercial aspects and with research matters connected with the disposal of effluents from gasworks. This liaison has been of special significance in connection with the preparation of evidence for submission by the Gas Council and the Institution to the Trade Effluent Sub-Committee appointed by the Central Advisory Water Committee of the Ministry of Housing and Local Government to enquire into the law relating to the disposal of trade effluents.

Lifts Design

The Gasworks Safety Rules Committee has prepared recommendations regarding the essential and desirable features in the design of lifts for use at gasworks which are included as a supplement to the 18th Report of the Chairman's Technical Committee. This report also contains three further supplements prepared by the Gasworks Safety Rules Committee and relating respectively to use on gasworks of electric cables insulated with polythene or polyvinylchloride, to the inspection before putting to work of gasholders of the Wiggins type and to the purging of electrostatic detarrers by means of clean coal gas.

Consideration has been given by the Committee to difficulties which may arise in observing the Petroleum Spirit Regulations in regard to the oil which has been used as a sealing medium for large B.M. meters measuring gas which has not been debenzolised. The use of water as a sealing medium has been discussed and several meters which have been so sealed for long periods have been dismantled and examined and found to show no evidence of corrosion. The Committee recommends that when gas is not debenzolised serious consideration should be given to the use of water as the sealing medium for B.M. meters.

The Gasworks Safety Rules Committee also has under consideration the framing of safety precautions in regard to the use of light petroleum distillate in oil gas and water gas plants.

Following a recommendation submitted jointly by the Gas Distribution Committee and the Gasworks Safety Rules Committee, the Council appointed an *ad hoc* committee on electrical bonding to consider the problems arising from the flowing of electric currents in gas installations and services consequent upon cathodic protection and the existence together of electrical and gas installations in domestic and other premises. The membership of the *ad hoc* committee comprises representatives appointed by the relevant standing technical committees of the Institution together with a representative of the Industrial Gas Development Committee of the Gas Council and three electrical engineers. The discussions the *ad hoc* committee has had so far have emphasised the complexity of the subject, and further enquiry and investigation will be necessary before the committee will be in a position to report its findings.

The 34th report of the Gas Education Committee which was presented and discussed at the 23rd Autumn Research Meeting contains an account of the educational activities of the Institution.

The Ministry of Education was unable this year to arrange a short course for teachers in gas subjects owing to staff shortage. A course may be arranged in the Midlands during the summer of 1958, however.

Sandwich courses in gas engineering have now become an established means of qualifying for Corporate Membership of the Institution, and indeed this method of entry will shortly predominate. Three courses in gas engineering are now in operation at Salford, Birmingham and Westminster. A further course in civil engineering with an option of specialising in gas engineering, is in operation at Enfield. It is doubtful whether there will be a sufficient demand to justify the initiation of any further courses.

The first of the sandwich courses in gas engineering, initiated largely by the North Western Gas Board at Salford, was completed in the spring of 1957 and many of the students who attended this course, having been students of the Institution, have now been elected Associate Members.

Advertisements appeared in October and November for two awards to be made from the Woodall-Duckham Educational Fund, the disposal of which is at the sole discretion of the Institution. These awards will enable two qualified technologists each to attend two of the Summer School courses at the Institute of Gas Technology.

The Institution was pleased to be invited again by W. H. Allen Sons & Company to select, in collaboration with area boards, nine engineers to attend a course at post-graduate level in mechanical engineering.

Mr. G. H. Fuidge gave the sixth Christmas Lecture for Young People on January 1, 1957, at the Sir John Cass College. His lecture on 'The by-products of coal' completed the series of six lectures given in the Metropolis and a return is to be made on January 2 and 3, 1958, at the Imperial College of Science and Technology when Mr. F. Brinsley will talk on 'Flame.' Mr. Brinsley will also lecture at the Central Technical College, Suffolk Street, Birmingham, on January 10. Mr. W. F. Thorne is to give a lecture to young people on 'Flame' on January 2, 1958, at Southampton University. These lectures are to be held under the ægis of the Midland Section and the London and Southern Section of the Institution of Gas Engineers respectively.

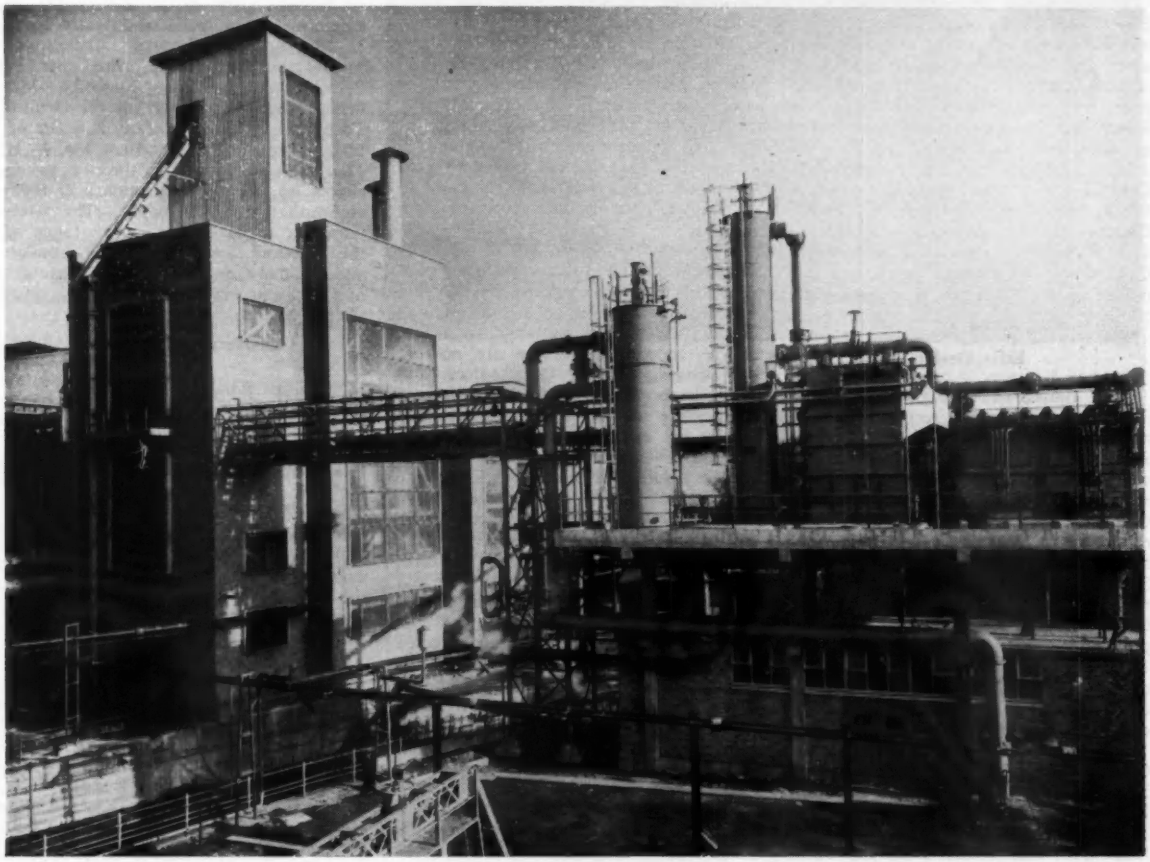
Considerable Exemption

Notwithstanding the number of students attending sandwich courses the number of candidates taking the Institution's Associate Membership Examination was 71 compared with 22 the year before. Most of these candidates had studied by means of national certificate courses and were accordingly entitled to a considerable measure of exemption. The standard achieved by the candidates of the Institution compared favourably with that attained by the candidates from any other Institution.

In the examination for the Certificate of Gas Salesmanship and Consumer Service there was a slight increase in the number of candidates, but the general standard was not so high, either in the written or oral examinations, as in previous years. It is hoped that the Sales Training Manual written by Mr. C. C. Knights and sponsored by the Gas Council on the recommendation of the Sales Training Committee will be widely used and will lead to an improvement in the results of future examinations.

Another Annual General Meeting picture: Left to right, Mr. E. M. Edwards, Sir Henry Jones (then President), and Mr. W. K. Hutchison.

New Plant in 1957 Showed Swing Toward Changing Technique in Gas Production



A view of the Power-Gas total gasification plant at Watford.

Total Gasification at Watford

THE Eastern Gas Board have installed a total gasification plant at their Watford works, which will have its capacity raised as a consequence to about 7½ mill. cu.ft. per day. The plant has been designed and installed by The Power-Gas Corporation, Ltd.

This plant is designed to produce 2 mill. cu.ft. of gas per day at a calorific value of 326 B.Th.U. per cu.ft. This bituminous water gas may be carburetted which will raise the output to 2½ mill. cu.ft. per day at a calorific value of 475 B.Th.U. per cu.ft. Gas at 326 B.Th.U. per cu.ft. will be used as a diluent for the horizontal gas instead of the producer gas. If, however, carburetted bituminous water gas is planned, it will be necessary to rely on producer gas as a diluent.

The plant is made up of a retort-generator, carburettor, superheater, wash box and waste heat boiler, together with certain ancillary plant. The retort generator is designed to permit higher efficiencies than is possible when bituminous coal is used in a normal water gas generator. It can be easily seen that during the blow period a large amount of distillation products would be lost. It is necessary, therefore, to superimpose a retort on the water gas generator in such a way that the bituminous coal has been subjected to heat to drive off the volatile matter before it becomes part of the generator fuel bed. Once this has happened the generator behaves as in normal water gas production, with the water gas up-graded by the distillation products.

The coal used in this plant is Baddesley or Woodside from the West Midlands coal-field with a B.S. swelling index of 1½, a volatile content of 36.3%, and graded to 1-2 in., in fact, coals of ranks 700, 800 or 900 may be used. The plant consumes 40 tons of coal a day.

The retort generator is a cylindrical mild steel shell lined with refractory brickwork, except for a lower part of the true water gas generator which incorporates an annular boiler, in which steam is raised at 120 lb. per sq. in. The generator is fitted with a dry base which allows higher blast pressures to be used and thereby increases flexibility in output and grading of fuel.

To ensure the uniform heating of the coal charge in the upper part of the retort generator, the retort section is divided into segments with walls radiating from a central pier which is supported on a refractory arch. The annular flue is built into the walls of the retort, through which the blow gases will pass, and helps to maintain satisfactory conditions for the downward movement through the retort, while the fuel is uniformly fed into the top of the retort by an automatic charger.

The distillation gases formed in the

retort during the period are taken independently to the wash box, the valve admitting these gases to the top of the carburettor having been closed.

All steam for power purposes is generated at 120 lb. per sq. in. in the packet boiler and the waste heat boiler. This steam will be used to drive the turbo-blower supplying blast to the generator and any auxiliary pumping equipment there may be which will pass out exhaust steam at 25 lb. per sq. in. into a steam accumulator to become process steam.

The plant is operated hydraulically throughout by oil pressure controlled by the conventional 'robot' operator normally fitted to their water gas plants by The Power-Gas Corporation, Ltd.

The plant is equipped with an automatic central lubrication system by which predetermined quantities of lubricant are pumped electrically under pressure to selected points. A separate system operates the grease seal and the moving parts of the grate. All explosion discs are made of aluminium sheet.

The gas after leaving the wash-box passes to the ancillary plant from which it enters an existing spirally-guided relief holder of 800,000 cu.ft. capacity.

Kingston, I.O.W.

COLLIERS of 2,000 tons capacity bring coal from the Northumberland coalfields to the 200-ft. long jetty of the Southern Gas Board's new works at Kingston, I.o.W., where two electric cranes unload it.

First, it can be placed in store by means of the boom conveyor and the drag scraper unit at a rate of 200 tons per hour; or it can be recovered from store by the drag scraper unit and the lower reclaiming conveyor at a rate of 100 tons per hour, while the discharge from the reclaiming conveyor is fed to the coal belt supplying the carbonising plant; or it can be placed in store and conveyed to the carbonising plant simultaneously.

The carbonising installation comprises a bench of five intermittent vertical chamber oven recuperative settings, each containing six 3¼-ton capacity chambers. The plant is designed to produce 3½ mill. cu.ft. of gas per day, and carbonise 250 tons of coal per day. The coal hoppers have been built to carry 48-hour storage. Space has been left for extension northwards to include a further unit of 3½ mill. cu.ft. per day.

The coke is dropped from the intermittent vertical chambers into the coke car, which is taken under the quenching tower. After quenching, the coke is discharged into a ground level hopper, feeding on to twin coke feeders and discharging on to an inclined band conveyor to a junction tower.

It can either be by-passed to ground storage, or fed on to a crossband conveyor to the grading plant. A belt and bucket elevator adjoins the transfer tower for handling the recovered coke from storage.

Two parallel operated screen units comprising Pegson scalping units, cutters, and grading screens of the reciprocating tray type, each have a designed throughput of 25 tons per hour.

Bagging and bulk loading arrangements have been made for all grades.

Two Roots type exhausters, each capable of passing 150,000 cu.ft. of gas per hour, are installed. These are driven by single-cylinder vertical steam-engines which are designed to exhaust against a back pressure of 20 lb. per sq. in. which will be used for process work.

Wet Purification

Wet purification plant includes two vertical tube condensers, a Livesey washer, and an electro static detarrer, together with a static ammonia washer. A forced draught cooling tower is installed in conjunction with the condensers.

The condensers are of unusual design in that while the bulk of the gas-cooling is done in the centre section, operated by water circulating through the forced draught cooling tower, the final cooling of the gas is carried out by the incoming softened town water feed, which is used as make-up to compensate losses through the cooling tower, and the hot gas entering the condenser is used to pre-heat boiler feed water.

Tray Purifiers

From the outlet of ammonia washers, the gas passes to a set of four mild steel tray type purifiers, having a capacity of 3½ mill. cu.ft. of gas per day.

In the station meter house, two Connersville meters of 150,000 cu.ft. per hour capacity, complete with P.V.T.T. recording instruments, are installed, one for measuring coal gas, and the other for water gas to be used when the plant is installed. From the station meters the gas passes into a 3-lift, spirally-guided holder, having a capacity of 1 mill. cu.ft.

Aerial view of new Kingston, Isle of Wight, works.

The pressure thrown by the holder is 14 in. W.G., and a further holder is in process of construction on the foundation over the river foreshore. It will also be of the spirally-guided type, having three lifts. The capacity of this holder will be 750,000 cu.ft.

A 30 in. main crosses the main approach road from the main storage holder outlet to the booster house, which accommodates two Roots type machines, each capable of delivering 250,000 cu.ft. of gas per hour, at a pressure of 4 lb. per sq. in. They are driven by vertical steam-engines, exhausting at a pressure of 20 lb. per sq. in. In addition, there are two 2-stage electrically-driven fan-type boosters, each capable of delivering 100,000 cu.ft. per hour, against a pressure increase of 44 in. W.G.

The ammonia concentration plant is installed immediately to the south of the wet purification plant, and has a capacity of 500 gal. per hour of 10 oz. liquor, concentrating this to a product containing not less than 20% of ammonia.

Onia Gegi Plant at Carlisle

THE Northern Gas Board have recently installed an Onia Gegi oil gasification plant at their Carlisle gas-works in the Cumberland Division.

This plant, which is unique in that it is the first fully regenerative plant which the contractors, Humphreys & Glasgow, Ltd., have built in Great Britain, was commissioned at the end of January and so it has run long enough to be able to show its possibilities.

The Onia Gegi system of oil gasification makes use of a fixed bed cyclic process and employs a catalyst whereby a mixture of atomised oil and steam are converted to a gas of similar calorific value and combustion characteristics to town gas. The 'blow' and the 'run' periods are employed as in the manufacture of carburetted water gas.

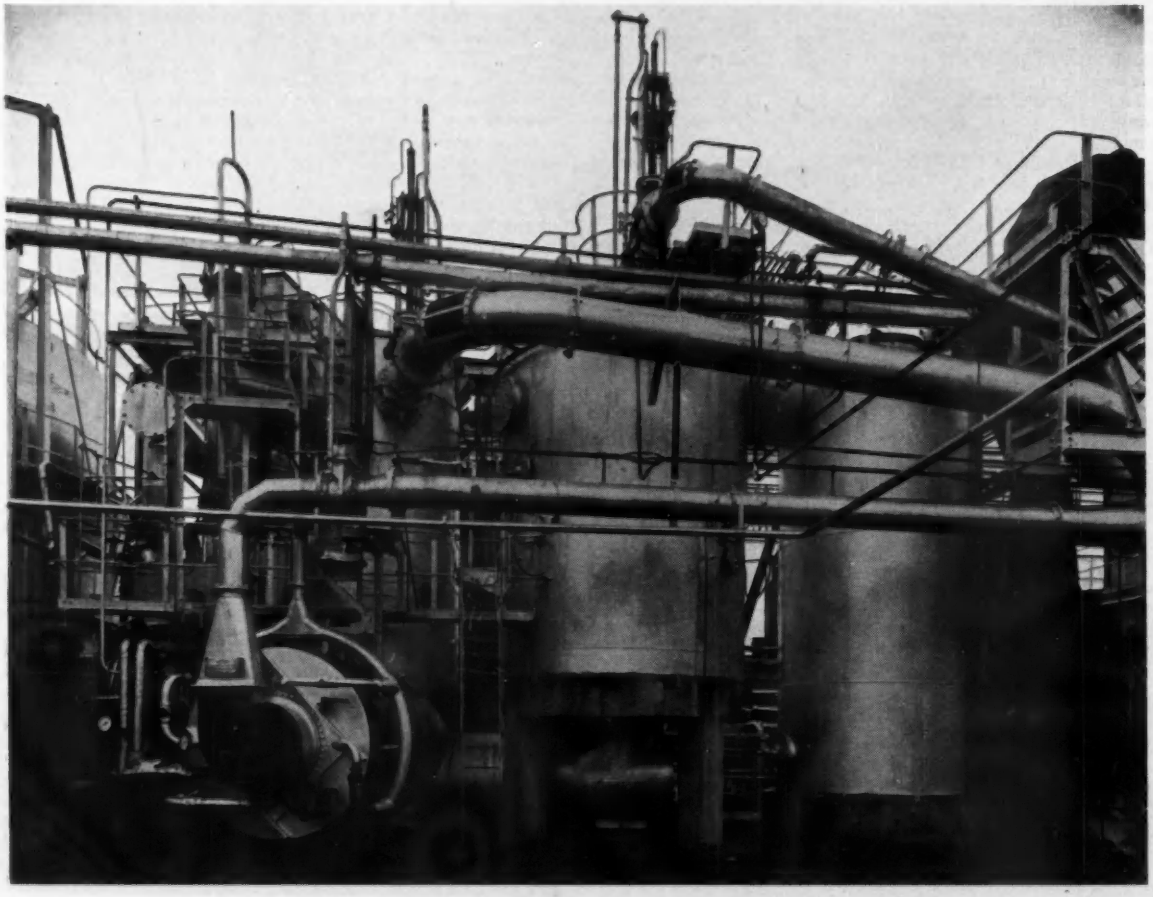
The consumption of coke in the Carlisle area is such that the Northern Gas Board has no difficulty in selling all that it wants to and so any increase in gas-making capacity should not rely on the manufacture of C.W.G. For this reason oil gasification was chosen as a means of supplementing coal gas supplies and providing peak load gas during the winter.

The Onia Gegi plant at Carlisle has a capacity of 1 mill. cu.ft. per day and uses '1,000 secs.' heavy oil with a specific gravity of .97.

Three Vessels

The main plant consists of three mild steel cylindrical vessels lined with fire brick and insulated successively by high temperature insulating brick, fossal brick and slag wool. This applies to the large diameter connections between the vessels. Oil is burnt in an Urquhart burner and compressed air is supplied to this burner and the air to the air/gas regenerator, from electrical driven centrifugal blowers. A flame failure device is provided which will bring the plant back to its standby position if the oil burner should fail to light after the gas-making period.

The plant is controlled by an automatic operator which is installed in the control room in which are also housed the main electrical control panel and the instrument board. The automatic operator uses pneumatic power for the necessary control of the plant with the



A close-up view of the Onia Gegi plant. The arrangement of pipe work can be clearly seen and the pneumatically operated valves are shown at the top of the air/make gas regenerator and the reactor vessel.

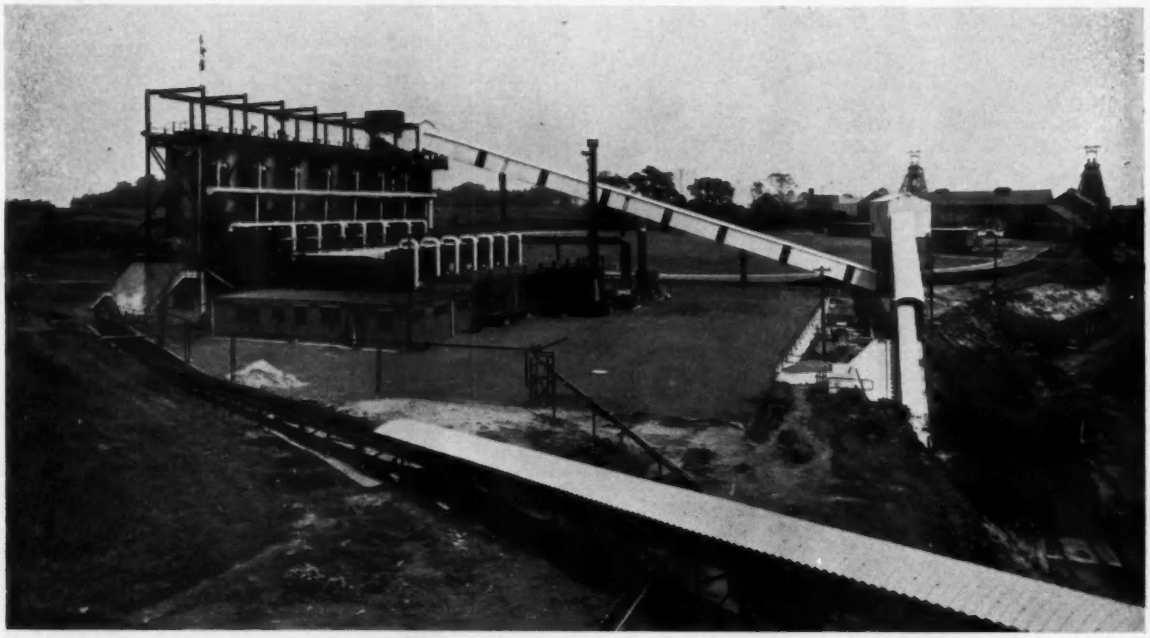
appropriate actuating cams similar to those used for many years in the automatic operators of water gas plant. The moment of operation is indicated by the appearance or disappearance of a red indicator rod on the top of the operator casing and labelled appropriately. The compressed air for the operator is supplied by two Broomwade compressors driven by two 5 B.H.P. motors. One is in use and the other standby.

A hand-operated hydraulic system controls the amount of burner oil and make oil being consumed. The cycle lasts eight minutes and is divided up as follows: Blow 44%, make 49%, oiling 38%, make purge 4% and blast purge 3%.

At the safe position all valves close except the stack valve which is opened.

All effluents are taken to a ground level tar separating tank. The tar is run off and the liquor is cooled and recirculated through the gas washer. The circulating water is in turn cooled in a timber cascade cooler. The tar is run into a special storage tank from which it can be fed to the oil burner and used in place of oil. This is the normal practice. The gas passes from the gas washer to a small relief holder of 10,000 cu.ft. capacity, from which it is fed into the main works gas stream.

National Carbonising Co. Ltd. Rexco Plant at Mansfield



'Rexco' plant, Mansfield.

THE 'Rexco' process of low temperature carbonisation is unique in that it makes use of a completely non-coking coal. The coal is charged into the retort from which the air is excluded in the ordinary way and hot gases, made by the combustion of gas formed in the process, are passed through the charge. The charge is later cooled by passing through coolant gases and finally discharged. The product may be considered as being the result of extracting the tar- and smoke-producing constituents from the raw coal at a temperature of about 750°C. The effect of this treatment is to form an extremely reactive but completely smokeless fuel. So reactive is it that the quenching of it on discharge must be very thorough to prevent it re-igniting and burning away.

The National Carbonisation Company are hoping to be able to add to the new plant at Thoresby Colliery and install a second unit of seven retorts. With the completion of such an extension at some future date, an increase in the amount of surplus gas available should help to decrease the cost of the product. At the moment a small amount of steam is raised by this surplus gas and anything over is merely burnt to waste, but with the future extension the quantity of available gas is estimated to be about 300,000 cu.ft. an hour. With this quantity of gas, the adjoining colliery might consider it worthwhile to install a gas turbine electric generating plant for the production of electric power for all its needs.

The plant at Thoresby Colliery consists of seven retorts, complete with mechanical handling plant for the charging of these retorts, the screening of the product, and the loading of wagons for despatch. All prime movers are electrically driven. Each retort has its own individual exhauster and gas washer. Tar and liquor from all the retorts are collected and separated in a large central rectangular tank. At the outlet of each exhauster the gas enters a common main through which it passes to the combustion chamber for the carbonisation process. Surplus gas is bled to the auxiliary steam boiler when necessary or to the flare for burning to waste.

The production of 'Rexco' is carried out in large cylindrical intermittent vertical retorts. These are heated internally by drawing hot gases from external combustion chambers downwards through the charge of coal. The tarry vapours which are the smoke-producing constituent of coal are thereby driven off, and subsequently recovered as low temperature tar oil.

Each retort consists of a mild steel plate shell, lined with fire-brick, 10 ft. in diameter by 25 ft. high, having a bottom door with a fire-brick grate, a charging door on top and a side top inlet from an adjoining chamber of similar construc-

tion. The bottom door is the full diameter of the retort, and has six flanged wheels on which it can be moved horizontally on two rails by a power-operated hydraulic ram. Starting with this door closed and sealed with fire-clay, and with a 34-ton charge of coal in the retort, the charge is heated for six hours and then cooled or quenched by drawing cold gas through it for six hours. The retort is then isolated and the bottom door is opened.

The carbonised coal, which is now low temperature coke or 'Rexco,' falls out of the retort into a receiving wharf below. After spraying with the minimum amount of water to prevent the immediate re-ignition of the warm, highly reactive fuel, it is conveyed to a screening plant and graded into sizes required by domestic consumers. From each 34-ton charge of coal about 24 tons of 'Rexco,' 700 gal. of tar oil, and 28 therms of gas are obtained.

The seven retorts can handle a total of 350 tons of coal per day. All coal carbonised is best quality Top Hard, and comes in two sizes, namely washed large nuts—4½ in. by 2½ in.—and washed small nuts—2½ in. by 1½ in., from the adjoining Thoresby Colliery in main line railway wagons to the 'Rotaside' tippler on the plant's siding. The empty railway wagons pass from the wagon tippler down the sidings to the 'Rexco' bunkers where they are filled with graded 'Rexco,' weighed and prepared for despatch. A conveyor runs horizontally along the top of the plant and is fitted with a travelling throw-off carriage or tripper which can be positioned to feed coal to any of the seven retorts through a telescopic tube or chute. This is lowered into the retort within a few inches of a bed of coke previously placed on the grate of the retort bottom door and is raised slowly as charging proceeds to prevent the coal from being shattered by a long fall.

The charging operation takes approximately 40 minutes and carbonisation of the charge is then begun. The coal gas generated, together with hot products passing through the charge, is drawn away by suction provided by an electrically driven fan-type exhauster. This gas mixture passes through the retort grate to a wash-box where it is cooled by cold ammoniacal liquor sprays which remove most of the tarry vapours and ammonia.

The resultant gas has a calorific value of about 140 B.Th.U. per cu.ft. Still carrying liquor and tar droplets it is pulled through a cyclone in which some of this droplet matter is removed by centrifugal action. Part of it is returned to the gas burners at the base of the retort combustion chambers, where it is burned under controlled conditions of gas and air admission.

Hot tar and liquor from the various items of plant are returned to a concrete settling tank, in which tar sinks to the bottom and is then pumped to tar storage tanks of 400 tons capacity for subsequent despatch by road to tar distillers. The hot liquor is pumped by centrifugal electrically driven pumps to an open-cooler where its temperature is reduced to 30°C. This cooled liquor returns by gravity to one bay of the settling tank where it is picked up again by similar pumps and used for cooling and washing purposes in the washboxes and elsewhere. Arrangements for the use of the surplus liquor as a land fertiliser have been negotiated.

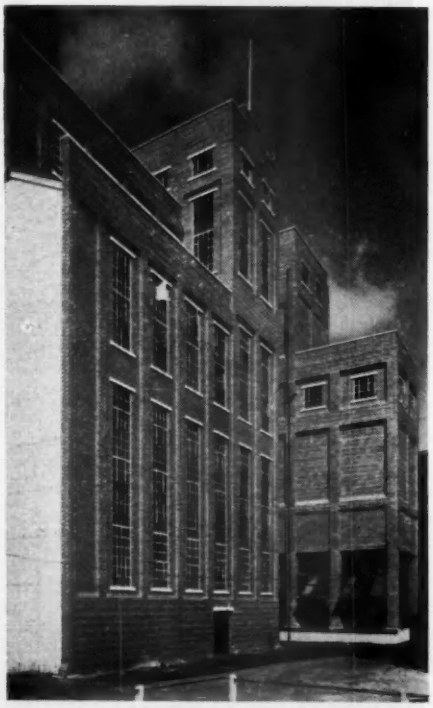
New Plant in Scotland

THE new carbonising plant at Dumfries which has been built by West's Gas Improvement Co., Ltd., of Miles Platting, Manchester, is contained in a modern brick retort house of pleasant design. It is completely self-contained, including coal and coke handling plant all of which is of West's design and construction, except the wagon tippler which is by Strahan and Henshaw. The plant has a capacity of 1.2 mill. cu.ft. per day with space for future extensions; it consists of twelve 50-in. retorts in three settings of four retorts built back to back. The coal is brought in from the British Railways main line to the coal tippler which can handle wagons of up to 24 tons capacity at a normal rate of 50 tons per hour, but can deal with a maximum of 65 to 70 tons of coal per hour.

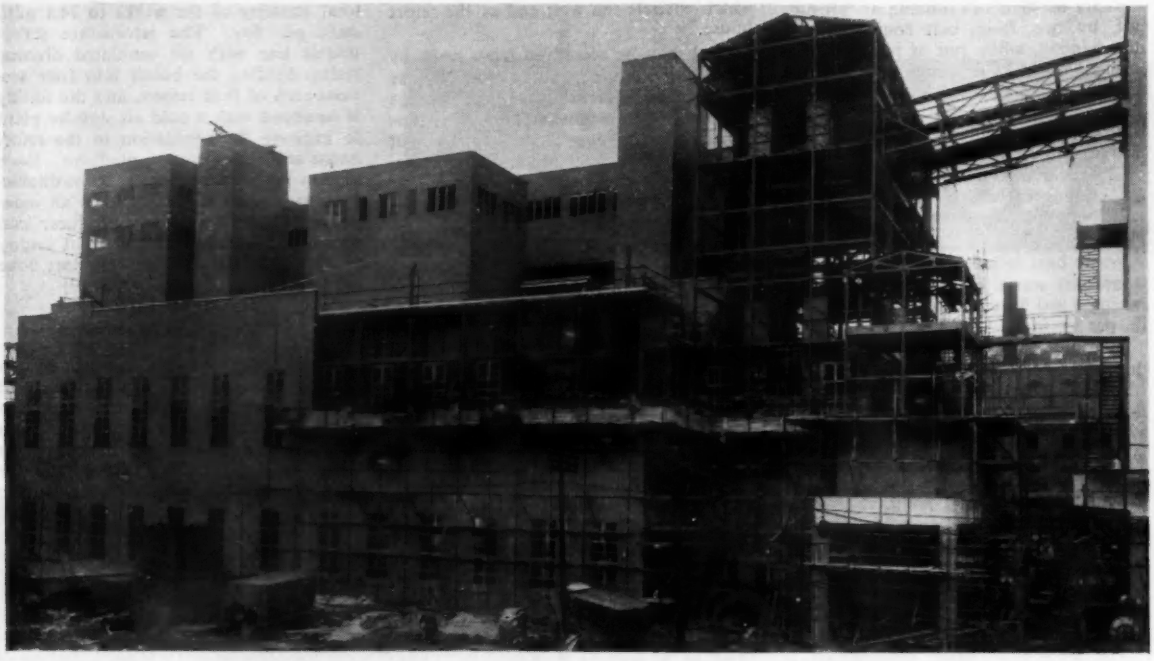
From here the coal passes through a single roll coal crusher to a 30-in. belt conveyor beneath the retort house which transports it to a gravity bucket elevator which, in turn, carries it up to the retort house bunkers. These bunkers have a capacity of 48 hours when the plant is being run at full output and are fed by a belt conveyor. The gravity bucket elevator can alternatively be used for coke handling. At the base of the retorts a hand-operated coke car is provided which can be moved to any retort discharge mouthpiece and guide the coke discharged into the bucket of the elevator which runs horizontally under the retort setting. By this means coke is elevated and can be either taken direct to the screening plant which is situated in an annexe of the retort house, to a producer fuel bunker of 16 tons capacity, to a scurfing bunker holding three tons, or to a night storage hopper of 60 tons capacity which is big enough to store all coke made at the week-end. The settings are of the standard Glover-West pattern with liquor sprayed gas off-takes, and are controlled by a Bryan Donkin gas-operated retort house governor.

The extractors are the Wests vertical spiral type delivering coke into a sprayed coke chamber, each capable of holding two hours' make of coke. The steaming of the retort charge is controlled by a West-Taylor valve.

All steam for use in the retort house is raised by a Spencer-Bonecourt waste heat boiler which is capable of generating 8,000 lb. of steam per hour at 100-110 lb. per sq. in., and is fitted with an electrically-driven Sirocco fan. The temperature of the waste gases at the outlet of the boiler is about 205°C. Any excess



Some idea of the standard of the buildings to be seen at the new carbonising plant at Dumfries can be gathered from this view of the retort house. With its attractive façade and large windows, the building provides an excellent example of the change in design of industrial buildings to be found throughout the gas industry. This plant was opened by Provost G. J. McDowall of Dumfries last June.



New plant at Provan.

steam from the waste heat boilers which is not made use of in the retort house is fed through a pressure reducing valve into the works steam main at 80 lb. per sq. in. There are two steam-driven G. and J. Weir boiler feed pumps with one as a standby.

The coke handling plant consists of a West's selective screening plant. This is of unusual design and consists of rake-like screens, the distance between the prongs being adjusted according to the size of coke to be passed. These screens are placed horizontally across a 40-in. band conveyor at an angle of 45°, and are given a vibrating motion by special 'Trillor' motors.

The coke travels down the length of the vibrating rake, the undersize coke passing through and the oversize coke being diverted to the side and then to the bunker below. The coke is screened into four sizes of coke and breeze—over 1¾ in., 1-2 in., ½-1¼ in., 0-½ in.

The civil engineering work which had to be carried out before the new retort house could be erected was complicated by the fact that the water table is only 9 ft. 2 in. below the surface and by the presence of the 'burn' which runs through the works. Before the retort house foundations could be laid down, it was not only necessary to drive about 100 piles, but to cantilever the foundations on the south western side to avoid the 'burn.' The high water table did not help matters when it came to constructing the cellars to house the conveyor belts from the tippler. It was necessary completely to line the below-ground part of the retort house with reinforced concrete before building could proceed.

The plant at Peterhead is another example of an installation made within the last few years to serve an isolated district where a gradual increase in consumption may be expected. Peterhead, in Northern Aberdeenshire, has a population of about 20,000.

The new plant has a gas-making capacity of 600,000 cu.ft. per day, with space for future expansion to 800,000 cu.ft. per day; like the Dumfries plant it was built by West's Gas Improvement, Ltd., of Manchester. It consists of six 50/56 in. vertical retorts 25 ft. long complete with built-in producers and mechanical handling for coal and coke.

It went into operation in 1950 and is an excellent example of what good design and layout can do when applied to a small works. Coal is brought in by road vehicle and tipped into a coal receiving hopper from which it is raised by an inclined elevator to the bottom of a West's lip bucket elevator. It is transported to the top of the retort house to fill the overhead coal bunkers or, by means of chutes, is ejected into the coal store for which the old retort house is used. The lip bucket also handles the run of retort coke and delivers it either to the main coke storage bunker, the producer fuel bunker, or the scurfing bunker, all of which are built of brick and steel, and have a combined capacity of 65 tons. The chute to these bunkers combines a fixed screen which will separate the small coke, which is passed to the producer fuel bunker, and allows the oversize to pass to the main coke department for local sales. Coke may be delivered directly into lorries or filled into sacks for small orders by a Belle Isle bagging machine.

There are two step grate producers, one of which is a standby, and each of which is capable of firing the setting. These producers are fitted with extension pipes to the air inlets so that the air may be drawn in from outside the retort house. The gas off-takes of the retorts are of the normal type while the retort house governor is a Bryan Donkin relay type with a Peebles automatic gas relief valve fitted in the foul main.

Waste heat is recovered by a Spencer-Bonecourt natural draught waste heat boiler which raises 3,000 lb. of steam per hour at 120 lb. per sq. in. and is ample for the works needs.

All plant—except for the electrically operated retort house lift—is driven by steam. This includes the exhausters, two of which are of the Waller 'rotary' type of 25,000 and 15,000 cu.ft. per hour capacity, and a new 'Roots' type of 30,000 cu.ft. per hour capacity installed in 1948 and driven by a 'Reader' single cylinder vertical steam engine. The exhauster house was reconstructed in 1948.

At the Kilmarnock works, on the edge of the Glasgow industrial area but not really part of it, there have been extensions in the carbonising plant capacity. The extensions so far built comprise 16 50-in. Glover West continuous vertical retorts with a capacity of 1.75 mill. cu.ft. per day, in two 'balanced heated' settings of eight retorts built in silica material and heated by two pressurised step grate producers with provision for a similar extension in the future.

Here again the coal and coke handling plants are the lip bucket elevator type, with capacities of 80 tons per hour and 31-35 tons per hour respectively. The total coal consumption is 200 tons a day, 80 tons of which are processed by the new plant. Coal is brought up to the retort house bunkers which have a

capacity of 48 hours running at full output, by two 36-in. belt conveyors and one standby, while run of retort coke is brought up in its lip bucket elevator and discharged on to a corresponding 36-in. belt conveyor. With the alternative routes to the scurfing bunker or the producer fuel bunker, this coke is fed on to a corresponding belt conveyor on the existing carbonising plant by which it is in turn transported to the screening plant.

Waste heat is recovered by a Spencer-Bonecourt waste heat boiler capable of raising 5,800 lb. of steam per hour at 120 lb. per sq. in.

A water preheater is also fitted, and this boiler is big enough to deal with waste gases from the ultimate four settings of retorts.

The maximum day's output from this works so far is 3 mill. cu.ft. but this is rising and has made it necessary to extend the gas-making plant.

The plants described so far have lately been commissioned and are actually making gas. The Scottish Gas Board are, however, carrying out considerable extensions at Provan gasworks which is one of the works supplying Glasgow.

The plant now under construction is being built by the Woodall-Duckham Construction Co., Ltd., on the site of an old horizontal plant. It will consist of 48 82-in. latest type silica lambent heated retorts, in two benches each of 24 retorts, with a throughput capacity of 436 tons of coal and a calculated gas make of 7.04 mill. cu.ft. of gas per day. It has been possible to make use of existing ancillary plant with few additions. A new C.W.G. plant consisting of two 4 mill. cu.ft. per day sets is also being installed as part of the new gas-making programme by Humphreys and Glasgow Ltd.

A good deal of civil engineering work has been necessary. At the western end of the new retort house the coal handling arrangements are being brought up to date to enable coal to be tipped on to an underground belt conveyor system to transport it into the retort house to the foot of the new gravity bucket elevators now being installed.

Two Benches

The carbonising plant is divided into two benches of 24 retorts and sub-divided further into six sections of four retorts which will allow independent working and greatly facilitate resetting or repairs to any section. Producer gas for retort heating is made in three mechanical producers, one for each bench with one as a standby. An Askania steam driven governor controls the producer gas pressure.

Coal is discharged by side tipplers at a maximum rate of 80 tons per hour, into a receiving hopper; this has two bottom outlets from either of which vibrating feeders pass the coal by way of single roll coal breakers, which can be by-passed, to belt conveyors. These pass through a tunnel and discharge the coal through rotary fillers to the foot of duplicated gravity bucket elevators, which encircle the west end of the retort house.

Coal may be recovered from stock by crane discharging into the tippler hoppers for distribution to storage bunkers. With a consumption of 9.1 tons per retort per day these bunkers will hold enough coal for 60 hours' running.

The coke handling plant consists of two sets of scalping and grading screens and coke storage of 600 tons. Four sizes of coke and breeze will be available and can be stored in varying quantities: 45 tons of ¼ in. to 1¼ in., 320 tons of 1 in. to 2 in., 115 tons of over 1¾ in., and 120 tons of 0–¼ in. breeze.

Producer fuel is brought from the screening plant by a belt conveyor of 30 tons per hour capacity to the gravity bucket conveyor which elevates it to the producer fuel bunker.

An electrically operated producer charging skip runs on an overhead track and is equipped with a weighing machine and totalisators for weighing producer charges. Ash and clinker are removed by three hand propelled skips with detachable bodies.

Coke can be brought in from the coke handling plant by a 40-ton-per-hour conveyor to the scurfing bunkers in the retort house.

Waste Heat Boilers

There are three waste heat boilers, each big enough for one bench of 24 retorts. Normally two boilers will be in use with one standby but all three can be employed by making use of the augmentation flue, which will be the equivalent at full output of an extra 16 retorts.

Feed water will be supplied by two Weir feed pumps capable of delivering 2,060 gal. per hour of preheated water. Superheaters will be provided to give a 100°F. superheat. All steam raised in these waste heat boilers will contribute to the main works steam supply; as a later development it may be used for generating electricity in a turbo-alternator. It is anticipated that there will be an export of steam at 160 lb. per sq. in. of 10,000 lb. per hour.

The only additional ancillary plant to be installed consists of a pair of water tube condensers by Newton Chambers & Co., Ltd., each with a capacity of 4 mill. cu.ft. per day, and a Holmes Connersville meter with a P.V.T.T. instrument of 8 mill. cu.ft. per day capacity.

The capacity of the reinforced concrete purifier stream is being increased from 12 mill. cu.ft. per day to 18 mill. cu.ft. per day.

To handle the extra gas which will be made at the works, together with an increased volume of coke oven gas which it is proposed to import, new booster plant is being installed consisting of three 750,000 cu.ft. per hour at 6 lb. per sq. in. boosters, with provision for a fourth machine.

At Aberdeen, a new plant of sixteen 103-in. H.D. downward heated retorts, which will be completed this year, is contained in a modern well designed retort house and is capable of producing 2.55 mill. cu.ft. of gas at 425 B.Th.U. per cu.ft. This is No. 5 bench and brings the total capacity of the works to 14.5 mill. cu.ft. per day. The retorts are set in double line with air ventilated division walls, dividing the bench into four sections each of four retorts, and the setting is equipped with a cold air douche plant to improve the ventilation in the retort house and the operating platform. Each section is independently controllable. Four step grate producers form an independent battery and any producer can provide any section of the retort setting with producer gas. Run of retort coke may be used in these producers.

Board's Own Locomotives

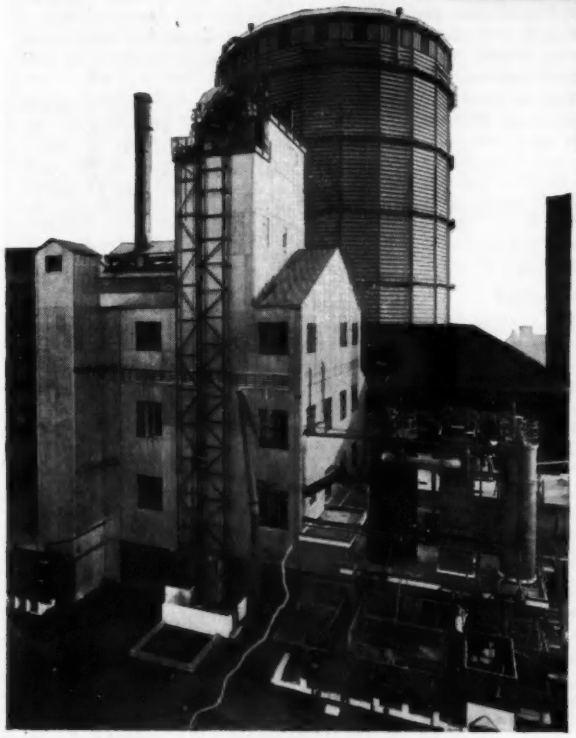
Coal is brought into the works by the Board's own steam locomotives and is tipped into receiving hoppers, from which vibrating feeders discharge it to belt conveyors. These belt conveyors form two streams, each of 100 tons per hour, which pass under the retort house floor and transport coal via coal breakers to twin gravity bucket elevators. The coal may be delivered to the present No. 3 and No. 4 installations by one stream, and to No. 5 and to the future No. 6 installation by the other. Coal can be delivered by the existing No. 3 coal handling plant to Nos. 3, 4, and 5, and the future No. 6 plant.

The gravity bucket elevator, which is fitted with Tecalemit-W.D. automatic lubrication transports the coal to the overhead retort house bunkers by means of a belt conveyor feeding shuttle conveyors.

The coke extractor gear is worked hydraulically, with an emergency steam standby. A stop restricts the movement of the hanger so that the coke with which the retort has been filled after scurfing does not flow too freely. The coke, which is discharged into skips, is transported by battery driven electric locomotives and discharged from bottom doors into the boot of a Jenkins twin skip hoist of 40 tons per hour capacity to a buffer hopper above the new coke screening and storage plant. The coke handling plant which serves the present carbonising plant is fed by a telepher which directly elevates the coke skip and discharges it into the coke grading plant. This system can also be used for the new plant though it would not be possible to transport coke from the existing carbonising plant to the new coke screens since the electrically operated locomotives are supplied with power by overhead conductors which for safety's sake have not been installed for the new plant.

The new screening plant consists of duplicate lines of screens, each capable of dealing with 40 tons of coke an hour, and comprising single deck vibrating Pegson scalping and debreezing screen and Jenkins' 'consort' grading screens. The coke storage bunkers are of 800 tons capacity and are divided in four compartments to store the following sizes: Breeze, 0 to ¾ in.; No. 3 coke, ½ in. to 1¼ in.; No. 2 coke, 1 in. to 2 in.; No. 1 coke, over 1¾ in. At the bottom of the bunkers, coke is delivered by chutes over debreezing screens to road vehicles for bulk loading or to Belle Isle bagging

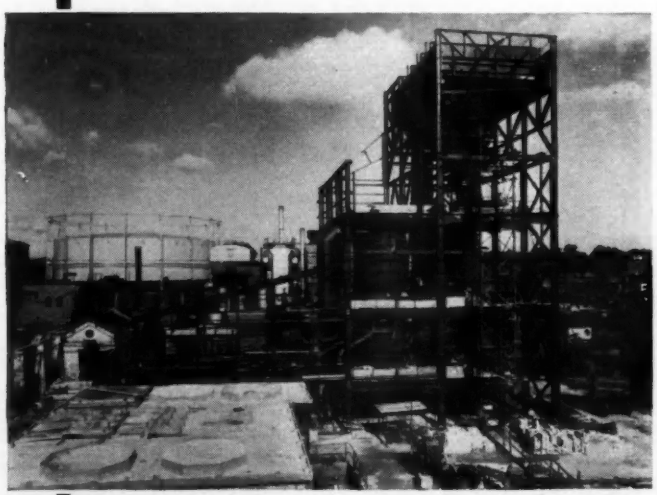
COMPLETE GASIFICATION



W-D/I.F.E. Complete Gasification Plants incorporating the Gas Integrale System.

The Kensal Green Works of the North Thames Gas Board. This plant was put to work in 1956 and is producing more than 2½ million cubic feet of 500 B.Th. U. gas daily.

The Gloucester Works of the South Western Gas Board. Now under construction, this plant will have a gasmaking capacity of 2½ million cubic feet of 470 B.Th.U. gas daily.



W-D

WOODALL-DUCKHAM

CONSTRUCTION COMPANY LTD

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and weighing machines. In the same way debreezed coke may be loaded into rail wagons.

Coke for the retort house producers may be fed from the coke buffer hopper by rotary feeders by way of a chute to a belt conveyor which transports it to the retort house producer fuel bunker or alternatively to a shuttle conveyor for transport to the scurfing bunker. Coke may also be delivered to Nos. 3 and 4 carbonising plants. The producer fuel bunker has a capacity of 58 hours.

The new carbonising plant will be provided with one Spencer-Bonecourt waste heat boiler raising steam at 100 lb. per sq. in. This boiler will be equipped with soot blowers of the Clyde type. The capacity of the feed water pumps will be 1,450 gal. per hour with a feed water tank of 150 gal. Feed water heaters are also being installed and by means of a reducing valve, steam may be led directly to the base of the retorts for steaming.

The ancillary plant with certain exceptions is adequate for the immediate future needs and is in excellent repair.

The only new ancillary plant it has been necessary to add, however, is a water tube condenser of 5 mill. cu.ft. per day capacity, together with a Holmes-Connersville exhauster of 300,000 cu.ft. per hour in a new exhauster house built on the site of the old mess rooms. Here two other similar machines will be installed at some future date.

Lostock Hall, Preston

THE new extensions consist of a 4.2 mill. cu.ft. per day intermittent vertical chamber carbonising plant, complete with coal and coke handling plant and all ancillaries.

As a part of the civil engineering work, main roads and an adequate draining system were laid out. By means of the drainage system all surface water and all water discharged from individual pieces of plant can be collected and brought to a single point of disposal. It was decided, therefore, to construct a prestressed concrete reservoir. The building of this reservoir has gone a long way towards solving the water supply problem. It has a capacity of 600,000 gal. and, since the works were commissioned, the total consumption of water in both works per ton of coal carbonised has fallen from an average figure for the year 1954-55 of 397 gal. to 270 gal. per ton, a decrease of nearly 32%. This system of water supply allows the use of town water, costing 25.3d. per 1,000 gal., to be confined to steam raising.

Coal is brought into the works by road or rail. Rail wagons are emptied into a reinforced concrete twin-receiving hopper, each compartment of which can hold 25 tons of coal.

The control of the tipplers and weigher recording mechanism is centred in a two-storey kiosk from which the operator can have a clear view of what is going on.

Coal can be taken direct to coal bunkers in the chamber house or can be stocked or recovered from stock by means of a grab scraper unit, which, complete with tail carriage head post and electric winch, can deal with 130 tons of coal in or out of stock per hour, which is the total handling capacity of the main coal handling plant.

The operator can control the path taken by the coal and can determine its destination, since all conveyor drives are sequence-interlocked and the control of direction is accomplished by remotely operated flopper gates. By means of a mimic diagram in the control room in the transfer tower the operator has a full knowledge of which way the coal is flowing and can change its direction at a moment's notice.

The chamber house is a well-designed building of attractive appearance. Its over-all dimensions are 109 ft. by 88 ft. by about 70 ft. to the spring of the roof. The building is equipped with windows made of glass blocks and consequently they cannot be opened.

To overcome difficulties of ventilation which would result from this, the whole building is supported on piers 13 ft. above the ground. Cast iron grids have been placed in the floor of the building which allows air to be drawn in from the free space below. There are three ventilators built into the roof through which hot air from the chamber benches may escape and encourage the circulation of air from below.

Built to the north of the chamber house and in physical contact with it is a reinforced concrete structure which contains the chamber house bunkers and beneath them the available space has been divided into a number of 'rooms' to house the exhausters, switch gear, etc. In this building also are to be found the waste heat boiler plant, men's mess-room and other amenities for the shift workers.

The carbonising plant consists of two benches of West's C.O.L. intermittent vertical chambers. The chambers have a total height of 21 ft. 2 in., a major axis

Lostock Hall, Preston.

of 10 ft. 6½ in. with a minor axis of 7¼ in. at the top and 12¼ in. at the bottom of the chamber.

The total carbonising capacity of both benches is 275 tons of coal a day with a production of 4.2 mill. cu.ft. a day of gas at a C.V. of 525 B.Th.U. per cu.ft.

The discharge outlets from the chambers are sealed by doors made of a special heat resisting alloy steel, which are opened by gravity and closed hydraulically.

Producer gas for heating the settting is provided by step grate producers which are built-in integrally with the recuperators. Each setting is provided with its own independent producers. Primary air is supplied by two electrically-driven fans, one standby, and saturation of the air blast is regulated by thermostatically-controlled valves.

The coal and coke storage bunkers are divided into two main sections, one for each bench. Each section is sub-divided into further divisions of different capacities designed to hold 415 tons of coal, 64 tons of coke for producer fuel and 43 tons of coke to form the protective pad at the bottom of the chamber. These quantities represent 72 hours running of the carbonising plant. Coke is transported from the coke grading plant in the same way as the coal by shuttle conveyors.

The chambers are charged by a charging car which draws coal and coke from storage bunkers. This is electrically-propelled and runs on an overhead runaway supported from cross beams at the top of the main buckstays. Each bench is provided with its own charging car and also with its own electrically-propelled coke skip for charging the step grate producers.

Continuous Scurfing

The method of running this form of carbonising plant makes it possible to carry out continuous scurfing.

After the carbonising period, the hot coke is discharged into the hot coke car which is taken to a reinforced concrete quenching chamber in which it meets a predetermined quantity of water. This is accomplished by a push-button controlled thruster valve fitted with an adjustable timing device.

After quenching the coke is taken to the coke wharf where it is tipped from the car. The tipping mechanism is worked pneumatically and gets its power from a compressed air system along the wharf through detachable flexible hoses.

The carbonising plant equipment includes two Spencer-Bonecourt horizontal induced draught waste heat boilers, 9 ft. diameter and 15 ft. 6 in. between the tube plates. Each boiler can handle all the waste gases from both benches with a production of 7,200 lb. of steam an hour at 165 lb. per sq. in. These boilers are equipped with superheaters to give a final steam temperature of 500°F.

The pass-out steam from the fan turbines is used for process work in the chamber house, which includes the supply of steam to the chambers and the step grate producers.

At ground level in the storage bunker building are the exhauster room, the electrical switch gear, and the boiler feed pump rooms. In this part of the building, too, are to be found the pumps and accumulator for the hydraulic extractor gear, and the electrical sub-station for the incoming grid feeder mains and the transformer room.

Since turbo-alternators for the generation of waste heat steam have not been installed, the grid mains are the chief source of electric power, and to provide standby generating equipment in case of emergency, a 310 kW six-cylinder diesel set by the English Electric Co., Ltd., has been installed, which can also supply peak load power when needed.

From the chamber house the gas is brought by a 24 in. M.S. main to two mild steel vertical water tube condensers, which, working in series, are designed to cool 180,000 cu.ft. of coal gas per hour from 175°F. (saturated) to 60°F., using recirculated water in the first taker and part recirculated and part town water in the second taker.

Waller Roots Exhausters

There are two steam driven Waller Roots exhausters—one standby—each with a capacity of 180,000 cu.ft. per hour at an inlet pressure of 6 in. W.G. and an out pressure of 48 in. W.G.

From the exhausters the gas passes to the detarrers. Two identical units—one a standby—are each capable of handling 180,000 cu.ft. per hour, and are placed on the roof of the high tension house in which the transformer rectifier unit and ancillary electrical gear are installed.

The ammonia washers are two multifilm static washers. Waste liquor cooled to 60°F. is used as the washing medium at the rate of 100 gal. per hour and will reduce the ammonia content of the gas to two grains per 100 cu.ft. From the outlet of the ammonia washers the gas passes by the 24-in. diameter main via a Holmes-Connersville meter to the dry purification plant. At this point the two gas streams from the Drake's C.V.R. plant at East works and the carburetted water gas plant respectively converge and, after being measured, each stream by its respective Holmes-Connersville meter, the three streams blend and go forward as a single stream.

The new purifiers are designed as a five-box set, each box 45 ft. 9 in. by 31 ft. 6 in. by 13 ft. 8 in. deep, in line, and as a complete unit with the individual boxes formed by division plates.

A box can be changed and be back in service in a working day.

Benzole Washers

From the tray purifiers the gas passes to two multifilm static benzole washers, which will operate under a maximum throughput of 500,000 cu.ft. per hour and at full load will recover 85% of benzole in the gas. At the same time, the plant will extract up to 40% of removable organic sulphur compounds, dependent on the relative proportions of the four main constituents.

The benzolised oil from the washing plant is pumped to the crude benzole stripping plant which is of the vacuum type and can deal with the benzole from the maximum throughput of 11 mill. cu.ft. of gas per day and can strip up to 4,500 gal. of oil per hour at the rate of 3.5 gal. per ton of coal carbonised. The spent oil is returned to the benzole washers.

All liquor is collected in a central crude liquor storage tank and pumped to the effluent plant which is divided into two main sections. First, the dephenolating plant and, secondly, the concentrated ammonia plant where liquor is stripped of free ammonia, carbon dioxide and hydrogen sulphide. The plant has a maximum productive capacity of 1,600 gal. per hour of 20-22% w/w concentrated ammonia from a crude liquor containing 1.5% of free ammonia.

The spent liquor is pumped to storage from which it is pumped down to a disposal station on the estuary of the River Ribble. By means of electrically-operated tide clocks, outlet valves at this point open automatically at the turn of the tide, to discharge the liquor on the ebb tide and close again before low water.

Each bench of chambers has its own coke handling equipment which is worked independently.

Each coke wharf is provided with finger gates which control the discharge of coke onto the wharf conveyor belt. The capacity of the belt conveyor system bringing coke to the screening plant is 40 tons per hour. By means of remotely controlled sequence operated switch gear, the operator with the help of a mimic diagram can decide in which direction coke is to be conveyed, either rough coke from the chamber house for screening or external storage or No. 4 coke to be returned to the chamber house for filling the producer fuel and pad coal bunkers.

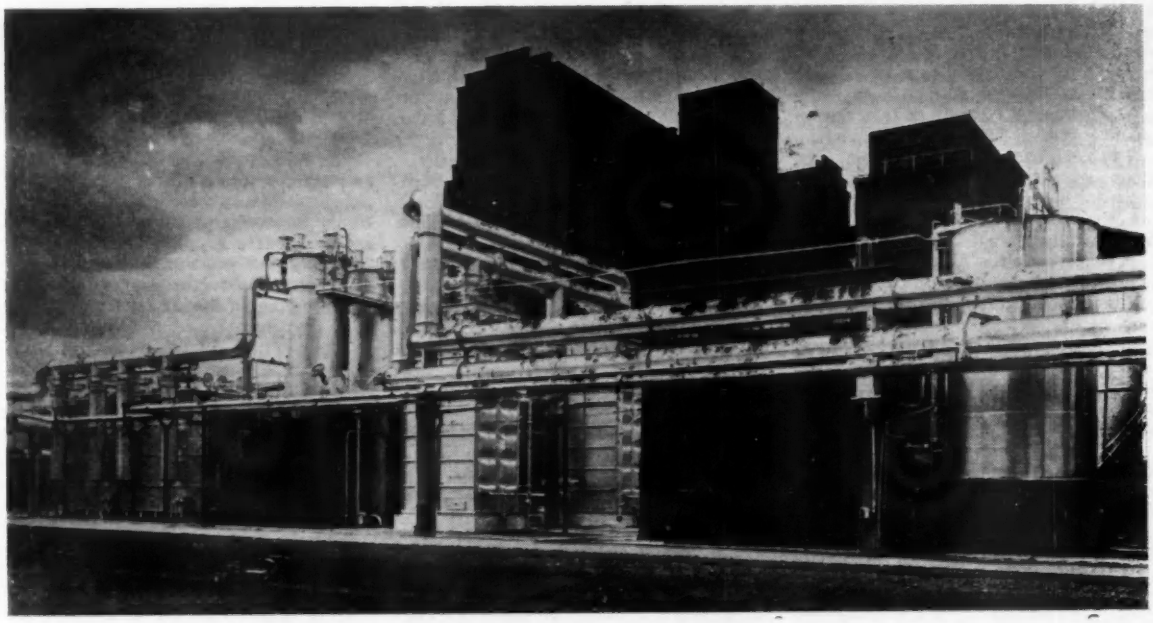
Coke Screening Plant

The coke screening plant consists of two lines of screening and cutting equipment with the following sizes: 0 to ¾ in., ¾ in. to ¾ in., ¾ in. to 1¼ in., and 1¼ in. to 2 in. The total storage capacity is 850 tons.

A third water gas unit has also been installed and consists of a 1.6 mill. cu.ft. per day at 450 B.Th.U. per cu.ft., completely automatic unit using ½ in. to 1 in. coke. It incorporates the new type of carburettor suitable for gasifying heavy oil. If a large grading of coke is used, the output from this unit may be increased and all ancillary equipment is large enough to deal with a gas make of 1.75 mill. cu.ft. per day.

To reduce the possibility of the formation of tar emulsions as far as possible, an elevated cone based primary washer and a hot electrostatic detarrer have been installed. In addition a secondary clean water circulating and cooling system has been provided. It is proposed to use the two old units for the production of blue water gas as a diluent and the third unit for CWG production when required, and confine carburation to the use of heavy oil.

With the completion of this plant the total capacity of this works becomes 14 mill. cu.ft. per day, with 1½ mill. cu.ft. per day of CWG plant as a standby for times of peak load or emergency.



New works at Litchurch, Derby.

Litchurch

THE new Litchurch gasworks, Derby, is the largest in the East Midlands Board area. Old plant of the original works has been supplemented with three new retort houses each of 5 mill. cu.ft. a day capacity. C.W.G. plant has been doubled by the provision of a fully automatic installation.

But the most important development lies in the new distribution control room, by which all gas from Chesterfield and Stanton coke ovens as well as Litchurch production is directed throughout the Notts and Derby Division or exported to the Leicester and Northants Division.

Carbonising Plant

The carbonising plant consists of three new retort houses of Woodall-Duckham continuous vertical retorts of a total capacity of 15 mill. cu.ft. per day, an old retort house of West's continuous vertical retorts of 1 mill. cu.ft. per day, and an old house of Gibbon's horizontal retorts of 2 mill. cu.ft. per day. Of these the horizontal retorts are only used in the winter because of their flexibility.

In each of the new retort houses are 40 82-in. continuous vertical lambent heated retorts capable of processing 360 tons of coal per day with a consumption of 40 tons of coke in its producer plant with a daily production of 5 mill. cu.ft. of gas, 212 tons of coke and breeze ex retort house and 10,000 lb. of steam per hour. These new retort houses are now known as Derby I, II and III.

Each bench of new vertical retorts is arranged in two benches of 20 and is provided with one transverse air ventilated division wall, to form two sections of ten retorts and to facilitate repairs to either section.

The two retort benches are arranged in line, while the retorts in each bench are in double line. Any individual retort can be controlled independently of the others.

Coke is discharged from the bottom of the retorts and is handled by belt and gravity bucket conveyors with a capacity of 40 tons per hour and transported to the screening and storage plant. This consists of two independent plants, one for each pair of retort houses. Each are housed in reinforced concrete structures which contain duplicate plant of Gyrex screens arranged to grade the coke in the following sizes: No. 1 over 2¼ in., No. 2 1¼ in.-2¼ in., No. 3 ¾ in.-1¼ in., No. 4 ¾ in.-¾ in. and breeze.

Facilities are available for loading rail and road wagons and there are two bagging platforms for each screening plant. The outlet chutes from each coke storage bunker are equipped with a debreezing screen.

Hot Gas Producers

There are three hot gas mechanical producers by Humphreys & Glasgow Ltd., installed in each of the new retort houses complete with hot gas dust separators and the necessary ancillary plant. All three are coupled to a common producer gas main so that any two may be used for heating the 40 retorts, with one common standby.

Coal gas may be admitted into the producer gas stream to provide underfiring of the retorts if it should be decided that such a course is economically desirable. By so doing 40% of the heating requirement may be met, equivalent to a consumption of .75 mill. cu.ft. of coal gas for every 5 mill. cu.ft. of gas made.

No. 4 graded coke is fed to the producers by means of a hand operated charging skip.

There are three 7 ft. 3 in. by 16 ft. induced draught waste heat boilers installed in each W-D house. Of these two boilers are in use with one standby and produce steam at 200 lb. per sq. in., superheated to 500°F.

Dust Extraction

Dust extraction plant is provided to collect the dust released from the retort coke during the discharging operation, and a vacuum cleaning plant has also been installed. Connection points are provided at all levels for hose extensions.

There are two streams of gas—one from Derby I and West's retort houses, the other from Derby II and III retort houses, which pass through the washing plant as separate streams after the boiler feed water heaters and are interconnected so that mixing of the gases can take place.

The two boiler feed water heaters of 5,400 gal. per hour capacity can deal with 12 mill. cu.ft. of cool gas per day and are arranged to work in parallel. Raw water is fed through the heaters and heated to within 10°F. of the hot gas temperature, and is passed to the water softening plant for treatment.

The two tar-liquor separators, one hot

and one cold, are situated adjacent to the ancillary plant pump house. Virgin liquor from the hot separator is pumped to two cast iron overhead feed tanks supplying the ammonia washers after cooling in rack coolers. The overflows from the separators are led to an underground tar and liquor separating and storage tank and thence to the raw tar and liquor storage tanks. From the primary coolers the gas passes to the exhauster house.

Exhausters

There are four Holmes Connersville exhausters 20 in. by 50 in. direct coupled to a two-crank vertical steam engine with a capacity of 500,000 cu.ft. per hour of crude gas against a pressure difference of 60 in. W.G. The engines are driven by steam at 190 lb. per sq. in., with a 100°F. superheat, and exhaust against a back pressure of 20 lb. per sq. in. under all conditions. A hydraulic regulator controls the steam throttle valves and maintains a constant suction on the gas inlet.

From these secondary condensers the gas passes to three Holmes 'Elex'-electrostatic detarrers each of 12 mill. cu.ft. per day capacity, with one acting as standby. The gas passes to the multi-film ammonia washing plant.

The gas passes on through 30 in. diameter steel overhead gas mains to a meter house in which are two Holmes Connersville meters, 24 in. by 72 in., each with a normal rated capacity of 12.6 mill. cu.ft. per day.

The tower gas purification plant which is designed to purify 24 mill. cu.ft. per day of gas and comprises two sets operating in parallel, each set being capable of purifying half the total throughput.

From the tower purifiers the gas is fed to a mixing point—where the mains increase in diameter from 30 in. to 36 in. at the inlet to the 6 mill. cu.ft. gasholder. At the express wish of the East Midlands Gas Board, this holder is riveted throughout.

There are two concentrated liquor plants. Both plants are continuous and automatic in operation and require a minimum of supervision. They are capable of dealing with 1,500 gal. of weak liquor per hour to produce a concentrated liquor of 20-25% ammonia content.

C.W.G. Plant

Carburetted water gas is manufactured in two plants, each of two machines, manufactured by Humphreys & Glasgow Ltd. The new plant, fully automatic, self clinkering and hydraulically operated, has a capacity of 4.8 mill. cu.ft. per day.

The continuous vertical retort installations and the two new units of carburetted water gas plant are provided with waste heat boilers raising steam at 200 lb. per sq. in., superheated to 500°F. This steam is utilised to drive the exhausters, boiler feed pumps and turbo-alternators. All other units of the manufacturing plant are electrically driven.

The turbo-alternator plant consists of two 1,000 kW self-contained pass-out condensing turbines incorporating a system of inlet pressure governing in association with automatic nozzle control.

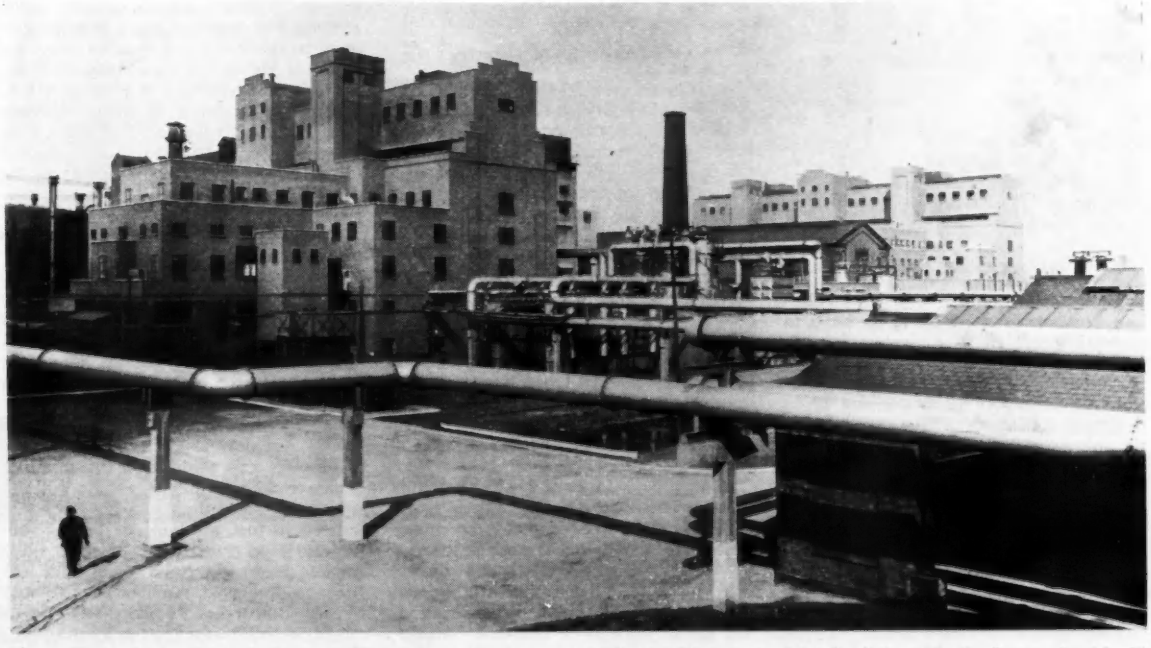
Each machine runs at a speed of 8,000 r.p.m. and drives a 1,250 kVA alternator at 1,000 r.p.m. through shaft reduction gearing. Steam from the waste heat boilers is utilised at 190 lb. per sq. in. at 483°F. and pass-out demands up to a maximum of 11,500 lb. per hour steam are met automatically.

The maximum continuous rating for each unit is 1,000 kW at .8 power factor and the machines are wound for a 415-volt, 50-cycle, three-phase supply.

Two Streams

The gas passing from the holder to the grid meter and compressor house is split into two streams. One stream is metered by a 28-in. by 84-in. Holmes Connersville meter rated at 19.2 mill. cu.ft. of gas per day and transferred by two Rateau turbo-boosters, each of 1 mill. cu.ft. of gas per hour capacity to the works gasholders for distribution. The other stream passes through a 24-in. by 72-in. Holmes Connersville meter, rated at 12.6 mill. cu.ft. of gas per day, to the medium pressure grid compressors.

The Litchurch works is the focal point of the grid control system and is able to meet either fluctuations in demand at any part of the system or compensate for variations of input from other sources of supply. To exercise control of the manufacture and supply throughout the system a control centre has been set up at Litchurch. There, information is received by telephone from the larger works and gasholder stations. To facilitate the smooth working of the grid, instantaneous control over the larger quantities of gas distributed is achieved by remotely controlled governors installed at the Stanton coke oven plant, and a similar system is to be installed at South Wingfield to control the distribution of gas from the 'backbone main.'



General view showing Derby I and West's retort house on the left and Derby II and III in the right background with the horizontal retort house in between.

Cannon (Holdings) Ltd.

AN ENCOURAGING IMPROVEMENT

LARGE SCALE DEVELOPMENT PROGRAMME

Mr. A. F. Oatley on effects of Government Restrictions

THE 23rd ordinary general meeting of Cannon (Holdings) Ltd., was held on December 16 in Birmingham, MR. A. F. OATLEY (Chairman and Managing Director) presiding.

The following is his circulated statement:

The Report of the Directors and accounts for the year 1956-57 show an encouraging improvement on the results for the previous year, when our business was so badly hit by the imposition of Credit Restrictions and high increases in Purchase Tax.

The sale of Cookers has in some measure recovered, but a great deal of leeway has yet to be made up before this can be referred to as a satisfactory position.

Gas Fires and Space Heating Sales generally are, however, still very much in the doldrums, and will remain so, as long as they carry the grossly unfair shackles of Credit Restrictions and Purchase Tax.

The simple fact is that Credit Restrictions and Purchase Tax barely, if at all, affect the sale of Electrical Heating Appliances, as their production cost is so very much lower than that of the cheapest Convector Gas Fire. Because of this the Total Purchase Price to the Consumer is no more, and in most cases Less, than the initial Hire Purchase Deposit on a Gas Fire.

Devastating Effect

The application of Credit Restrictions and Purchase Tax on an equal basis to both Gas and Electric Heaters has resulted in the boosting of the sale of Electrical Appliances **at the expense of the Gas Industry.** Some measure of its devastating effect may be gathered from the following figure of Sales:—

DOMESTIC SPACE HEATING SALES
12 MONTHS 1956

Gas	159,800 appliances
Electricity ...	2,044,080 appliances

SALES—JANUARY TO JUNE, 1957
(the slackest sales period)

Gas	60,100 appliances
Electricity ...	864,700 appliances

Your own Company's annual sale of Space Heaters **prior to the application of Credit Restrictions and Purchase Tax,** was greater than the total sales for the whole of the Gas Industry during the first six months of 1957.

Further Bureaucratic Promoted Competition in the form of Purchase Tax and Credit Control Free, Oil Burning Heaters, including tens of thousands imported from Germany, could be interpreted as a deliberate attempt to make certain of the wreck of a once thriving Industry. It has succeeded for a Major Output has now become a Side-Line, and a small side-line at that—indeed some Manufacturers have given up this Market entirely.

Whatever the virtues of Space Heating by Gas, and with Two-Part and Block Tariffs, it is still Cheaper, Cleaner, Healthier, and more convenient to use than any other fuel, the fact remains that because of the unfair loading by Taxation and Restrictions, **it has been priced out of the Market.**

Denied the right to develop its natural and economic balancing Space and Water Heating Loads, it is but a matter of time before the Nationalised Gas Industry becomes another Liability to the Community.

Unless these grossly unfair impositions are removed, we shall witness 'The Decline and Fall of an Industry'—which has already commenced.

The grim fact is that the Gas Industry is rapidly losing its Domestic Load largely because of this legislation sponsored unfair competition. It has so far held on to its meagre profits mainly by drastic, and often unwise economies, and by constant recourse to increased charges for its Commodity.

One Major Load Industry

It has become a One Major Load Appliance Industry—a Cooker Load.

Unless it is allowed to develop the Space and Water Heating Loads, then the time must come when Gas becomes uneconomic for the Domestic Consumer to use, and the Industry to Market. It is certain that had the Industry been allowed to continue the development of these Loads which was arrested in 1947, the Price of Gas would never have increased to anywhere near the extent it has—indeed Consumers would have now been heating their homes by Gas, at a cost at least a third lower than by burning coal in an open grate—and that can still be achieved, but only by the lifting of these Restrictions, and the exercise of greater freedom of decision and action.

It may be said that a Gas Board is autonomous—that is a fallacy. Its Officials are surrounded by so many Restrictive Committees, and influenced by Ministry Directive 'do's and don'ts,' that the Hope, Belief and Enthusiasm with which they started Nationalisation, has given place to Frustration, Disillusionment and Cynicism, at the bottom and the top. Few believe in a real future for the Domestic Load, or for that matter their Industry, so long as these Restrictions and Directives continue.

How does your Company stand in all this? So far we have been holding our own relatively well in a contracted market, where competition for a share in a much reduced size of cake is becoming extremely keen, and to some uneconomic. The fact remains that we have served the Gas Industry for many years, and hope to continue to do so.

It is difficult for Members of the Nationalised Industry publicly to express what I have said in this Report, but I know that they will whole-heartedly support the statement that given an even break, there is still a great future ahead for the Gas Industry to the benefit of the Country.

It will interest shareholders to know that after many frustrating holdups, due to uncertainty, brought about by factors beyond our control, such as four alterations in Purchase Tax and Controls in 12 months during 1955-56, your Directors are proceeding with a large scale development programme. This programme calls for considerable investments in Buildings, Plant and Machinery, which are expected to come into operation sometime next year. Its purpose is to extend your Company's activity outside of the Gas Industry, about which I shall have more to say later.

Reasonably Good Results

The results for the Current Year to the end of October are reasonably good. Should they continue so, it is fair comment to say that I anticipate an improved result at the end of this Financial Year.

During the year Dr. H. Hollings, O.B.E., because of pressure of other business, resigned his part-time membership of the Board of the Holding Company, Lt.-Col. Carter-Lewis, O.B.E., a descendant of the original Founder of the Company, succeeds him.

Addressing the meeting the Chairman said:

At the same time that I circulated my statement to the shareholders, I also sent a copy to high officials in the Gas Industry and all Members of Parliament.

I would inform you that I have been most encouraged by the support this has been given by Individuals, Associations, and particularly by that champion of Smoke Abatement, Mr. Gerald Nabarro, M.P., who once again drew the attention of the House to this ridiculous position where Clean Heat Appliances using indigenous fuel, are both Taxed and subject to Hire Purchase Controls, while smoke producing Solid Fuel and Oil Burning Imported Appliances are both Credit Control and Purchase Tax Free.

Mr. Nabarro, an expert in Fuel Utilisation and Conservation, whose Clean Air Bill was taken over by the Government

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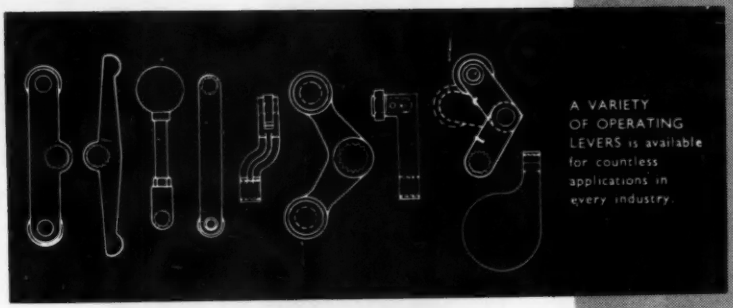

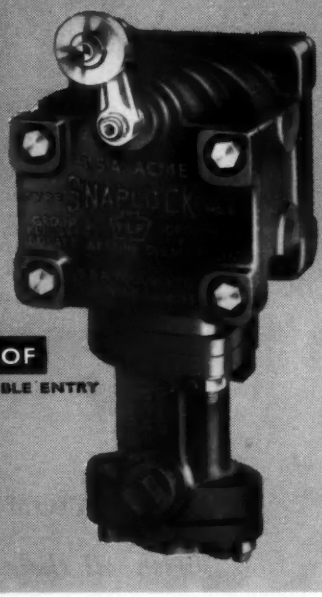

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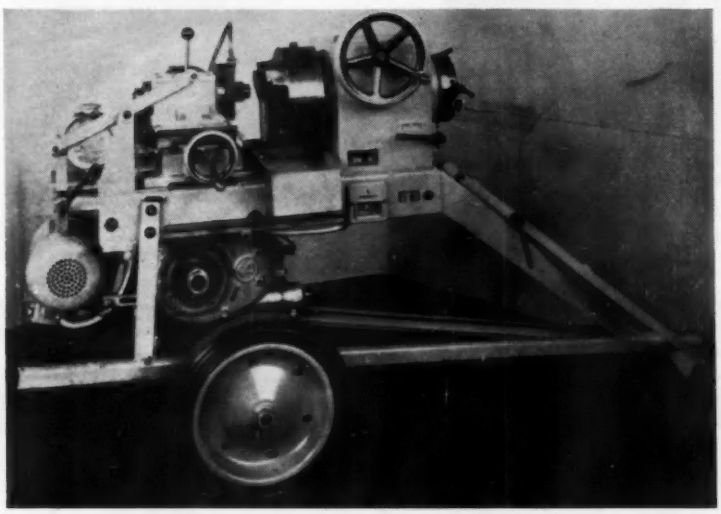

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and promptly mishandled, pleaded for enlightenment as follows:—

> 'Will my Hon. and learned Friend rise to the heights this evening of explaining his right Hon. Friend's fiscal policy and the reasoning behind these economics of the lunatic asylum? (Hon. Members: 'Hear, hear.') I have a lot of support from all sides of the House. I shall go on using these arguments, because I know that they are sound, but I cannot get any explanation from any Minister, Cabinet Minister or otherwise, in the Treasury or the Ministry of Fuel and Power, of these extraordinary anomalies.'

There is no doubt whatsoever that the removal of Hire Purchase Controls and Purchase Tax from these Clean Heat Gas Fired Appliances, would be a major contribution not only to Smoke Abatement and the Health of the Community, but would at the same time result in a substantial reduction in the cost of Domestic Heating, as well as arresting the rapid deterioration of furnishings and decorations caused by the use of unclean fuels —we could even look forward with certainty to the reduction of the price of Gas.

The report and accounts were adopted.

World Power Conference

ECONOMIC TRENDS IN FUEL HANDLING

THE theme of the Canadian Sectional Meeting of the World Power Conference in Montreal next September will be 'Economic Trends in the Production, Transportation, and Utilisation of Fuel and Energy.' Arrangements have been made by the Papers Committee (Chairman, Sir Josiah Eccles, C.B.E., Deputy Chairman, the Electricity Council) for the preparation of 16 papers for presentation by the British National Committee.

These will include 'The Mechanisation of Coal Winning in Great Britain,' by H. A. Longden, Director-General of Production, National Coal Board; 'The Effective Use of Fuel Resources through Gasification,' by J. E. Davis, O.B.E., Chief Technical Officer, South Eastern Gas Board, and C. Ryder, Chemical Department, South Eastern Gas Board; 'Fuel Efficiency in the United Kingdom and its Economic Advantages,' by W. A. Macfarlane, Chief Executive, National Industrial Fuel Efficiency Service; 'Recent Trends in the Industrial Utilisation of Gas and a Pattern of Probable Future Expansion,' by S. G. Aberdein, Commercial Manager, and A. E. Tyrrell, Deputy Divisional Manager, Headquarters Division, both of North Thames Gas Board; and 'Capital Requirements for the Use of Energy,' by G. H. Daniel, Under-Secretary, Ministry of Power.

Personal

MR. COLIN J. GODBOLD is now Assistant Editor of 'GAS JOURNAL' and 'GAS SERVICE.' Aged 26, he has been with Walter King, Ltd., for 4½ years. Before this he was with the Exchange Telegraph Co., Ltd., news agency.

DAME ALIX MEYNELL, D.B.E., has been reappointed Chairman of the South Eastern; ALDERMAN H. SUTCLIFFE, Chairman of the North Eastern; and SIR COLIN CAMPBELL, O.B.E., Chairman of the South Western Gas Consulatative Council.

MR. R. E. FISHER, a Fitter working in the Maidenhead district of the North Thames Gas Board, has been presented with an engraved clock to mark 40 years' service in the gas industry. Mr. Fisher, who shoots regularly at Bisley, has been a member of the Maidenhead and District Rifle Club for 35 years.

DR. W. D. SCOTT has been appointed Assistant Managing Director of BTR Industries Ltd.

Obituary

MR. WILLIAM HACKNEY, a Director of Bolton's Superheater & Pipe Works, Ltd., and of Stockport Engineering Co., Ltd., has died aged 59. He joined Bolton's Superheater & Pipe Works, Ltd., in an executive capacity in 1923. He was appointed General Manager in 1945, and joined the Board in 1947.

NINE RECEIVE LONG SERVICE AWARDS IN N.G.B. DIVISION

NINE employees of the Sunderland Division of the Northern Gas Board were presented with long-service awards by Mr. E. Crowther, Chairman of the Board, at a meeting of the Sunderland Divisional Management Committee.

Fifty-year awards went to Mr. Albert Wright, distribution foreman, and Mr. John Thompson, office manager, both of the Stanley Unit. Awards for 40 years' service were presented to Mr. Charles Stanley Read, works manager at the Ayre's Quay Works, Sunderland; Mr. Alfred Smith, assistant gasholder and governor attendant, Hendon works, Sunderland; Mr. Laurence John Johnson and Mr. Frederick Hobson, first-class fitters, Hind Street Distribution Department, Sunderland; Mr. Joseph Holyoak, shift attendant, Shotley Bridge works; Mr. William Norman Hull, domestic sales representative, Consett; and Mr. John William Kerr, first-class fitter, Stanley.

Diary

January 1. — INCORPORATED PLANT ENGINEERS: Bell Hotel, Leicester. 'Smoke Abatement,' by S. N. Duguid. 7 p.m.

January 1. — JUNIOR INSTITUTION OF ENGINEERS (MIDLAND SECTION): James Watt Memorial Institute, Great Charles Street, Birmingham. Ladies' Night. 'J.I.E. in Switzerland.' Film and Commentary on 1957 summer visit. 7 p.m.

January 6.—INSTITUTE OF FUEL (NORTH-EASTERN SECTION): King's College, Newcastle-on-Tyne. Ladies' Night. 'Oil Fuel at Home,' by K. S. Brett. 6.30 p.m.

January 7.—EAST MIDLANDS G.C.C.: Smithy Row, Nottingham. Ordinary Meeting. 11.30 a.m.

January 7.—INCORPORATED PLANT ENGINEERS: 25, Charlotte Square, Edinburgh. 'Construction of a welded pipe line,' by R. Downie. 7 p.m.

January 7.—INCORPORATED PLANT ENGINEERS: Royal Society of Arts, John Adam Street, W.C.2. 'A practical survey of automatic combustion regulation on industrial boilers,' by W. R. L. Kent, of Kelvin & Hughes. 7 p.m.

January 7.—MIDLAND JUNIORS: 'Atomic Energy,' by Mr. B. R. Payne, of the Atomic Energy Research Establishment.

January 8.—INSTITUTE OF FUEL: Great George Street, S.W.1. 'The Influence of the Absorption of Frothing Agent on the Percentage Recovery of Coal from Flotation Pulps,' by Dr. A. Jowett. 5.30 p.m.

January 8.—INSTITUTE OF FUEL (SOUTH WALES SECTION): Abbey Works, Port Talbot. 'Planning Construction and Problems associated with Berkeley and Dounreay Power Stations,' by P. K. Richards. 6 p.m.

January 8.—INCORPORATED PLANT ENGINEERS: Grand Hotel, Bristol. 'Education in Industry,' by E. G. Sterland. 7.15 p.m.

January 8.—INCORPORATED PLANT ENGINEERS: County Hotel, Nottingham. 'The petroleum industry,' by J. Collins. 7 p.m.

DISPLAY EXPERT WINS PRAISE

A SPECIAL pat on the back was given to Mr. James F. Watson, display expert at the Sunderland Unit of the Northern Gas Board, by the Divisional General Manager (Mr. W. O. Kirkwood) for his Christmas scene in Fawcett Street, Sunderland, showrooms.

It showed a small church standing on top of a mountainside and through its open door could be heard the voices of choir boys and an organ playing. Alongside water tumbled down a miniature waterfall, glittering in coloured lights.

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Some current works covering the manufacture, distribution, and sale of gas are :—

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The " Gas Journal " is published every Wednesday, price 1/6d.: by post 1/9d.

Subscription Rates : Home 65/– ; Overseas (from Sept 1, 1957) 72/6 per annum ; (Both payable in advance.) A copy of the " Gas Journal " Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 2/6 per line (approx. 7 words)—minimum charge 10/–. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements: Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10 in. deep × 7 in. wide; block screen 120.

BUSINESS MANAGER: S. T. CULLEN

NORTHERN MANAGER: Philip W. B. King, 11, Tewit Well Road, Harrogate. *Telephone:* Harrogate 69212.

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APPOINTMENTS VACANT

WALES GAS BOARD

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APPLICATIONS are invited for an ASSISTANT INDUSTRIAL GAS ENGINEER, within the salary range of A.P.T. 10 (Provincial 'A,' £860-£960 per annum) of the National Salary Scales for Gas Staffs.

Applicants should have experience in the design, construction and installation of industrial and commercial equipment, and should have passed the Associate Membership Examination of the Institute of Gas Engineers, or possess an equivalent qualification.

The successful applicant will be required to pass a medical examination.

The post is pensionable.

Applications, stating age, educational qualifications and experience, together with the names of two referees, should be addressed to the undersigned not later than two weeks following the appearance of this advertisement.

C. B. MAWER,
Secretary to the Board.

2, Windsor Place,
Cardiff.

SOUTHERN GAS BOARD

SENIOR HOME SERVICE ADVISER.

APPLICATIONS are invited for the post of SENIOR HOME SERVICE ADVISER, Southampton Region.

The appointment will be within Grade A.P.T. 6-7 (£586-£718 per annum), the starting salary depending upon the qualifications and experience of the successful applicant.

Candidates should be between the ages of 25 and 35, and should have had a minimum of two years' full-time training at a College of Domestic Science recognised by the Ministry of Education, and hold a Diploma from that College: or equivalent qualifications.

The successful candidate may be required to pass a medical examination and, unless already subject to a Pension Scheme by virtue of the Gas (Pension Rights) Regulations, 1950, will be required to join the Board's Staff Pension Scheme.

Applications in writing, stating age, education, experience, qualifications and present post, should be addressed to reach the Personnel Manager, Southern Gas Board, 164, Above Bar, Southampton, not later than January 12, 1958.

HONG KONG & CHINA GAS CO., LTD.

HONG KONG.
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Applicants must have wide experience in commercial, industrial and domestic utilisation of gas, a knowledge of comparative cost and merits of other fuels. Experience in modern High/Low pressure gas distribution practice is necessary including main laying, service, fitting and meter repair work. Possession of The Institution of Gas Engineers' Certificate (Supply) or equivalent qualifications advantageous.

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Applications stating age, experience, professional qualifications, education and particulars of training, etc., together with two recent testimonials should be forwarded to the undersigned not later than January 24, 1958.

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FOR Sale or for hire, Hudswell Clarke 0-6-0 Standard Gauge Steam Loco, in good condition. Apply, Eagre Construction Co., Ltd., Scunthorpe, Lincolnshire. 'Phone, 4513 (7 lines).

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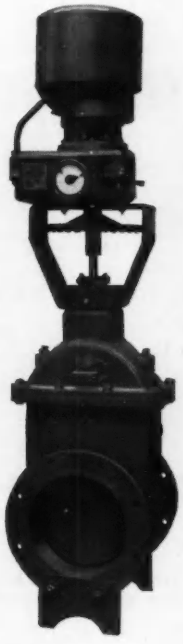
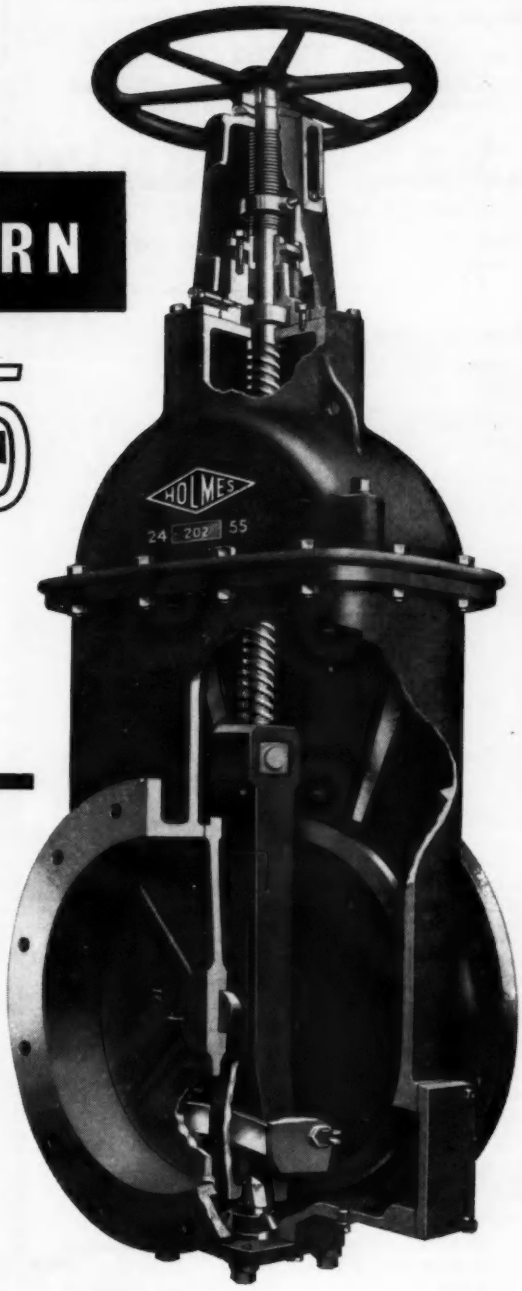


The illustration shows a 12" motorized Holmes-Western Valve.



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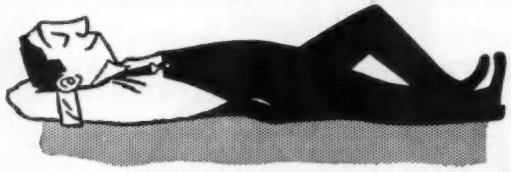

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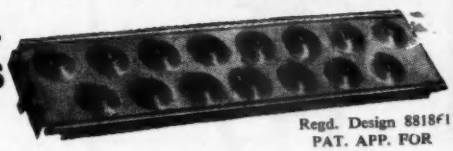

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